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DENSITY AS A PLANNING ISSUE IN SUBURBAN DEVELOPMENT: THE CASE OF WEST JASPER PLACE

by

Ⓒ MARK A. SORENSON

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
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ABSTRACT

From an evaluation of the density concept, it was concluded that the factors that influence density standards have changed dramatically in the last two decades. Initially, in the nineteenth century, density standards were developed in an effort to improve living conditions, but, as planning theory evolved, density was conceived to be an allocative device for residential space requirements and service and facility provision. It therefore stood as a synoptic measure, summarizing a complex array of environmental variables in a single statistic which was meant to express some desired level of environmental quality. In fact, the relationship between density and environmental quality was clear only under conditions of homogeneous development, such as could be found in suburban tracts of single family residences laid out on neighbourhood unit principles. Under changing market conditions of the past 15 years, and the dual pressure of more intensive development of suburban land and a greater diversity of suburban housing, the use of density standards for planning purposes has simultaneously become more obscure and more controversial. To the owners of single family houses, in particular, attempts to increase the density of residential land use are frequently seen as a threat to everything that they value in the suburban environment.

An interpretation of these suburban density issues was developed from the responses of an opinion survey distributed to single family homeowners in three differently designed neighbourhoods in West Jasper Place. The purpose of the survey was to determine the factors which influence density and density-related reactions. As the study area, West Jasper Place was selected on the basis of housing development characteristics, planning history and documented density protests.

The survey findings showed that density per se did not represent a major influence in housing reactions. The "neighbourhood effect," or the way in which the neighbourhood environment is regarded as a place to live, was much more important. It affected not only reactions to housing, but to all residential characteristics. It was also concluded that internal design characteristics of the neighbourhood (land use layout, distance between housing types, location of multiple housing) and design elements of different housing types do not significantly contribute to reactions.

The survey findings also indicated that density standards have not been an effective way of addressing current density-related issues and problems in suburban development. From a review of recent applications of the density concept, it was concluded that the development of density-related guidelines provides planners with a much better understanding of the role of density in suburban development and the complex relationships of the variables that contribute to environmental quality.

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I. CHAPTER ONE

INTRODUCTION

The purpose of this thesis is to evaluate the planning application of the density concept through a case study of residential development in West Jasper Place, Edmonton. Here, as in other suburban areas in Edmonton, the density of residential land use has become an issue of great concern to residents, planners, developers and municipal politicians. Much local controversy has erupted, chiefly on the initiative of single-family homeowners who fear a loss of vital aspects of environmental quality as development densities are raised. It is in this sense that density is treated as a planning issue in this thesis. The central objective is to draw out the implications of these resident fears for the contemporary application of density measures or standards in residential land use planning.

Although density has played a crucial role in the planning and design of residential areas since the origins of the modern planning movement, it is a concept that has created many problems and a great deal of confusion. This can be attributed to the failure of land use planning theory and practice to keep abreast of changes in Canadian society. In particular, different housing and environmental needs, and changing priorities in suburban development, have undermined the effectiveness of density standards as a simple control on environmental quality.

Initially, during the nineteenth century, density standards were developed in response to overcrowded and unhealthy housing conditions. Given the standard definition of density as "a measure of the designed population capacity of the land"[1] and "the degree of closeness with which dwellings, and hence the people occupying them are arranged,"[2] early density standards were based on criteria of health, safety and privacy. These still represent important elements of the density concept, in the sense that density controls are meant to ensure that some desirable minimum standard of living conditions is achieved. More recently, that view has broadened and density standards have been used as an allocative device for residential space requirements and the delivery of services and facilities. Thus, the role of density is crucial because density controls really provide a framework for the residential environment that encompasses not only living conditions and housing requirements, but also the provision of education, recreation, transportation and other facility and service needs for a projected population. Yet, it is in the very breadth of its ramifications that the weakness of the density concept rests. On the one hand, it is seen as a synoptic measure or indicator of environmental quality and, following from that, a convenient way of expressing baseline standards for future development. On the other, little, if anything, is actually known about the ability of the conventional density measures to express anything of significance about the interdependence of complex environmental variables.

---

[1] F.S. Chapin and E.J. Kaiser, *Urban Land Use Planning* (Chicago: University of Illinois Press, 1979), p.50

[2] Ministry of Housing and Local Government, *The Density of Residential Areas* (London: Her Majesty's Stationery Office, 1952), p.1

This general problem has been intensified in Canada in recent years by the changing conditions in the housing market, which have made a virtual necessity of higher density development. This has run counter to conventional planning approaches towards suburban areas, influenced as they have been by the neighbourhood unit concept and single family housing development. But, in the last two decades, the rapid inflation of land prices, higher building and servicing costs, and changing household composition have created a need for higher density housing forms to be accommodated in suburban areas. The result is suburban neighbourhood environments composed of a mixture of detached and multiple housing.

One outcome of this trend to an increase in the average density of suburban development has been a vigorous and, apparently, unexpected resistance from single family homeowners. Their protests are based on the belief that increased amounts of multiple housing will devalue their property, increase the competition for public facilities and services, and create social problems because the lower cost housing will attract what are perceived as undesirable socioeconomic groups. This situation has created a real problem for planners. Essentially, solutions to two conflicting issues must be determined: how can planners increase the densities of suburban neighbourhoods in a way that is acceptable to single family homeowners, and how can housing be provided at a low cost while still maintaining some desirable standard of environmental conditions?

Through a case study of in West Jasper Place, this thesis will identify how planners are coping with the issues that affect the application of the density concept in suburban neighbourhoods today. Have planners succeeded in recognizing the problems and the implications of increased densities for homeowners? What are the characteristics of multiple housing that incite negative reactions? Is the development of multiple housing the only solution to providing low cost housing in suburban areas? To address these concerns and other density-related issues, a questionnaire survey was designed and distributed to homeowners asking for their opinions about neighbourhood housing, public services and facilities, and other residential characteristics that are affected by density controls.

The selection of West Jasper Place as the study area was based on its characteristics of housing development and neighbourhood design, its planning history, and its record of homeowner protests towards housing densities. Although most of the neighbourhoods in the area are designed around a mixture of multiple and single family housing types, the exceptions of Callingwood (primarily multiple) and Westridge (primarily single family) permitted a comparison of reactions in three differently designed neighbourhoods. The third neighbourhood, Aldergrove, was selected on the basis of highly publicized homeowners' opposition towards housing projects that would increase the average density of development in the neighbourhood. Concern for density issues in all three neighbourhoods indicated that homeowners should be interested in a survey dealing with housing opinions.

Chapters 2 and 3 are devoted to the history of the density concept and the factors that have changed its role and application throughout time. From its origins in the sanitary and housing reform movements of the mid-1800's to the American Public Health Association's attempt to establish generally acceptable density standards, the planning literature is reviewed in Chapter 2 to trace the development of the density concept at a time when the desire to improve living conditions represented a planning priority. Chapter 3 focuses on the factors that have affected the treatment of the density concept during the last two decades. In particular, changes in the Canadian housing market and the implications of increased suburban densities for homeowners are considered.

The selection of West Jasper Place and a description of the area's planning characteristics are presented in Chapter 4. This is accompanied by an evaluation of the 1967 Outline Plan for West Jasper Place and the 1972 Amendments, to determine the role of the outline plan concept and density standards in the development of the area.

In Chapters 5 and 6, the research methods employed in the thesis and the findings from the survey are reviewed. The development of the questionnaire and a description of its contents are presented in Chapter 5. Sampling and questionnaire returns are also discussed. The analysis of the questionnaire response patterns in Chapter 6 reveals important implications for the application of the density concept, particularly the discovery of the "neighbourhood effect."

The final chapter of the thesis reviews the most recent attempts by Edmonton planners to apply the density concept in suburban neighbourhood environments. The density guidelines in the "Distribution and Design of Neighbourhood Density Report" are compared to the findings of the Housing Opinion Survey, and conclusions regarding the present function of density standards and the role of density-related design guidelines in suburban development are presented.

II. CHAPTER TWO

THE APPLICATION OF THE DENSITY CONCEPT

A. DENSITY DEFINED

Residential density is defined, in principle, as "the degree of closeness with which dwellings, and hence the people occupying them, are arranged."[1] In practical terms, this means that it is "a measure of the designed population capacity of the land,"[2] and "the method of expressing the number of people or the number of dwelling units on a particular plot of land."[3]

Although density is a means of expressing such physical relationships as persons per acre, building coverage and floor area ratio, it is much more than a measurement technique. As a planning concept, it is a manifestation of a fundamental concern for the relationship between people and the amount of land they need for their accommodation.[4] While planners utilize density calculations to estimate land needs, these calculations are made in an effort to ensure that certain desirable standards are obtained for new development, and to convey an idea of present standards for existing development.[5] Thus, density standards act as criteria for residential development, for they are usually expressed as numerical values setting the maximum number of people per unit area of land. As a control device, density standards have a major value in subdivision regulations, zoning ordinances and so on, for they "give assurance that land crowding, encroachments on daylight and similar blight-inducing factors will be controlled."[6] In relation to living conditions, however, the significance of density standards and measurements is more complex, for they do not directly reflect design qualities or physical aspects of development. To appreciate the role of density standards, it is necessary to identify the basic needs that should be fullfilled in the planning of a residential area and how these needs would be affected by alterations in density.[7]

---

[1] Ministry of Housing and Local Government, *The Density of Residential Areas* (London: Her Majesty's Stationery Office, 1952), p.1

[2] F.S. Chapin and E.J. Kaiser, *Urban Land Use Planning* (Chicago: University of Illinois Press , 1979), p.50

[3] Urban Land Institute, *Residential Development Handbook* (Washington: Urban Land Institute, 1978), p.153

[4] Ministry of Housing and Local Government(1952), p.2

The United Kingdom Ministry of Housing has summarized the basic residential needs in the form of four principles:

1. "Enough living accommodation arranged in a suitable variety of dwellings."
2. Dwelling arrangement should provide access to light, air, sunshine, and open space.
3. The physical relation between service facilities

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[5] IBID
[6] American Public Health Association-Committee on the Hygiene of Housing, *Planning the Neighbourhood*(Chicago:Public Administration Service,1960), p.36
[7] Ministry of Housing(1952), p.2

(such as shops and schools) and dwellings should be convenient.

4. The scale and position of the residential area should be convenient in relation to the rest of the urban area, including places of employment.'

As a planning tool, density standards are an attempt to express, numerically, the most effective means of satisfying these principles. Although each can be considered separately, the difficulty confronting planners is that the principles are contradictory from a design perspective. To provide a residential environment that satisfies the criteria of ample dwellings, spaciousness, and open space for outdoor activities, planners would have to restrict development to low densities. If, on the other hand, there is a desire for living conditions in which convenience and accessibility are stressed, it is apparent that more compact, high density development would be appropriate.

In attempting to provide "desirable" living conditions, however these are defined, the planner is confronted with the problem of determining a balance among the factors that control residential density itself, and that entails compromise. As the Ministry of Housing report concludes:

> "The point at which to strike the balance will be a matter of opinion, often of controversy, and will involve decisions of policy on such vital matters as the proportion of people to be accommodated in houses and flats."'

'IBID
'Ministry of Housing(1952), p.3

It is apparent, then, that while density standards can be regarded as numerical representations of the balance among factors which affect living conditions, differences in residential needs and local conditions make it impossible to determine absolute density standards. It can be concluded therefore that the purpose of density standards is not to provide a universal format for the development of residential areas. Rather, density standards should represent a calculated balance of residential needs to be used as a planning guide to ensure that a desirable minimum standard of living conditions is achieved. And both the desirable minimum standard and the acceptable balance will vary with the circumstances of time and place.

B. THE BEGINNINGS OF THE MODERN PLANNING MOVEMENT

The concern for "suitable" densities and the controlled development of residential areas originated in the sanitary and social reform movements of the mid nineteenth century, notably in Great Britain and Germany. Both will be reviewed here, along with the rather different orientation that emerged later in the United States. The purpose is to show the density concept, which began as a comparatively straightfoward control upon environmental health conditions through the prevention of overcrowding, gradually took on larger meaning in planning theory and practice.

Low standards of housing documented in reports by

Engels,[10] Chadwick,[11] and others, early in the Victorian period, created interest in public health and the provision of services to improve the overall quality of urban areas. In the early period of industrial development, before the introduction of mass transit systems, workers were encouraged to live close to the factories. An increase in urban migration was accompanied by housing shortages, and also changed the physical structure of the towns. Provisions for open space and public parks were not considered, and the demand for working class housing encouraged the close arrangement of buildings. With the absence of building regulations and land use restrictions, severe overcrowding and back-to-back houses were evident in many industrial towns.[12] Although high density housing was seen as a solution to the housing problem, this development pattern was underlain by a powerful financial motive:

> "In general, working class housing districts were built purely as a commercial undertaking...... Congested property, built back to back in confined areas, was constantly increasing simply because it was a profitable investment, although it imposed a heavy cost on the community."[13]

In addition to the excessive building densities, a lack of public maintenance and sewerage facilities caused a further decline in living conditions. Since there was little or no space between the houses, access to light and air was severely limited. The situation was similar for water and drainage facilities; street cleaning and sewage disposal became the responsibility of local residents, and dwellings were forced to share an intermittent supply of water.[14]

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[10] F. Engels, *The Condition of the Working Class in England* (Oxford: Basil Blackwell, 1958 edition)

[11] M.W. Flinn (ed.), *Report on the Sanitary Conditions of the Labouring Population of Great Britain by Edwin Chadwick, 1842* (Edinburgh: Edinburgh University Press, 1965)

[12] G.E. Cherry, *Urban Change and Planning*(Henley-on-Thames: G.T. Foulis and Company, 1972), p.30

[13] W. Ashworth, *The Genesis of Modern British Town Planning*(London: Routledge and Kegan Paul Ltd., 1954), pp. 20&21

In response to the inadequate residential environment of working class areas, Chadwick completed an independent report in 1842 on the sanitary conditions of Great Britain's labouring population.[15] The significance of the report was that it clearly identified a relationship between excessive housing densities and deficiences in public sanitation and amenities. Although Chadwick's principal concern was the decline in morality and the increase in disease caused by unsanitary and overcrowded housing, the report's detailed descriptions of high density districts and the intensity of public health problems changed the public's opinion towards urban life and sparked a variety of reform legislation, such as the Public Health Act, 1848. It was also Chadwick's conviction that overcrowding and the subsequent deterioration of living conditions was increasing, and he used his report to cite examples of this trend.[16] Additionally, the report identified environmental causes for the spread of cholerea, typhus and other contagious diseases. In particular, typhus was termed the "poor man's disease" because of its presence in high density districts; "it was the product of squalor, insanitation and overcrowding, a perquisite of working-class housing."[17]

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[14] G.E. Cherry(1972), p.31

[15] M.W. Flinn (ed.), *Report on the Sanitary Conditions of the Labouring Population of Great Britain by Edwin Chadwick, 1842*(Edinburgh: Edinburgh University Press, 1965)

[16] M.W. Flinn (1965), p.10

While it is apparent that Chadwick recognized the health problems associated with high density environments, his documentation of substandard living conditions did not help improve the quality of working class housing in central urban areas. With a public attitude that saw the decay of working class districts as only a temporary characteristic of urban growth, the impact of the urban reform movement was still limited to providing the public with an awareness of conditions.[18] On the surface, the Public Health Act of 1848 and subsequent national legislation represented progressive steps towards the improvement of housing conditions for the working classes. Although the 1848 Health Act gave local authorities the power to control cleansing, sewering, paving, and the provision of a water supply, its adoption was inconsistent throughout Britain. Many local governments were poorly structured with over-lapping responsibilities and waste among different bodies and commissions. Cherry indicates that in the corporate and non-corporate towns of England with populations of more than 5,000, only 175 developed local acts from the national Public Health Act while 296 towns failed to adopt the national act for local conditions.[19] Moreover, the 1848 Act failed to establish local government boundaries that would correspond to built-up areas. Large parts of the industrial towns were excluded from local government controls, or were the responsibility of outlying parish authorities. The situation did not change until 1875, when the revised Public Health Act established a national structure of urban and rural sanitary districts with clearly defined responsibilities.[20] In addition to the problems associated with local government jurisdiction, slum clearances sparked by the 1848 Act only disrupted the supply of housing and aggravated the situation.[21] As a result, the state of housing in the central working class districts did not improve: they were still high density, overcrowded areas for families with marginal wages and assets who could not afford alternative accommodations.

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[17] M.W. Flinn(1965), p.10
[18] W. Ashworth(1954), pp.52&65

One response to the close dwellings and unhealthy living conditions found in the central city was the rapid development of suburban areas in the late 19th century. While suburban growth was attributed to increasing population numbers, the initial spread into outlying areas was associated with the quest for social exclusiveness by the upper and middle classes.[22] For the upper classes, the availability and low cost of land presented an opportunity to hold large properties, and the housing style and size represented a symbol of social status and wealth. Social motivations also attracted the middle classes to the suburbs, but the outward move was based on practical considerations of regard for health.[23] Because the intense development found in the central working districts was associated with overcrowding and disease, the bourgeoisie were drawn to the suburbs by their superior sanitary conditions and greater privacy and living space. It was apparent that these features could be most effectively provided in environments of low densities.

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[19] G.E. Cherry(1974), p.38
[20] G.E. Cherry (1974), p.29
[21] G.E. Cherry(1972), p.17
[22] IBID, pp.62-64

With the comparatively low cost of suburban land, low density housing also became affordable to the upper levels of the working classes, the so-called "labour aristocracy." To a certain extent, however, the development of suburban areas was dictated by the availability of public transport. In particular, the growth of working class suburbs was dependent upon the cheapness and frequency of commuter trains or tramways which linked the outlying areas to the industrial city centres.[24] Although public transport enabled the more affluent working classes to escape the high density,overcrowded environments, it also encouraged urban sprawl and increases in suburban land values. The demand for inexpensive, low-density housing forced developers to consider land located farther and farther away from the city centre. While the lure of better living conditions continued to attract families from the central districts, a lack of legislative authority in the suburbs sometimes allowed the rapid construction of faulty and substandard housing. [25] Additionally, there was no assurance that public services and sanitary facilities would be provided to new homeowners. As a result, the development of healthy and safe suburbs partly depended upon the outward movement of urban government boundaries, since boundary extension also meant the extension of building byelaws and public health controls into erstwhile rural areas.[26]

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[23] G.E. Cherry(1972), p.65
[24] W. Ashworth(1954), p.149&150

Regardless of the problems associated with suburban growth, it is apparent that the movement to the suburbs by the middle and working classes reflected a general public outlook towards density: that high densities represented unhealthy and immoral environments, and low densities provided the improved living conditions of cleanliness, privacy, efficient public services and greater space. The impression that low densities were "good," and high densities "bad," proved to be an underlying motive in the continuous development of suburban residential areas. In essence, the density concept was established during this period of planning history, and, as will be shown, the application of density in modern residential design still reflects some of the early principles found in the social and sanitary reform movements of the 19th century.

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[25] W. Ashworth(1954), p.157
[26] IBID

As with the development of the suburbs, the emergence of the planning movement in the late 19th century reinforced the shift towards low density housing. According to Cherry, the town planning movement arose from the search for an ideal city and society by architects and community builders.[27] Because of the continual concern over working class housing conditions, public officials and reformers believed that government intervention was necessary if better living environments were to be provided. In particular, government intervention meant that officials could establish public health and housing standards, essentially by setting strict limits on the density of development. A critical step towards controlling housing conditions was the 1875 Public Health Act, which called for a central body of control and locally administered sanitary districts in urban and rural areas.[28] However, the most important feature of the act for the present purpose was its comprehensive approach towards the improvement of housing conditions, for much of the legislation in previous sanitary and health-related acts was consolidated in the 1875 Public Health Act. Although the act did not directly identify the need to regulate "density" per se, the power to adopt byelaws concerned with overcrowding and space between buildings was a critical component of the act's overall purpose. As an example, section 90 provided local governments with the authority to fix or limit the number of persons who could occupy a dwelling, and section 157 addressed the importance of regulating the spacing of buildings:

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[27] G.E. Cherry(1972), p.84

[28] IBID, p.85

> "Every urban authority may make byelaws.... with respect to the sufficiency of the space about buildings to secure a free circulation of air, and with respect to the ventilation of buildings." [29]

National regulations compelling local authorities to build sewage works and water supply systems greatly improved the living conditions in working class districts as well, and the deaths from epidemic diseases, all due to poor sanitary conditions, fell sharply.[30] By giving local authorities the power to regulate the construction of new steets and new buildings, the 1875 Public Health Act advanced the conditions of working class housing and ensured that a higher standard was maintained for new development.

Despite these improvements, however, housing deficiencies and unhealthy conditions were still evident in many cities of Britain. The 1875 Act was therefore followed by several public inquiries into the housing conditions of the working classes. In particular, the royal commission of 1885 recommended an extension of local government duties, including housing inspections for sanitary conditions and the power to purchase land and provide loans for municipal housing projects. These recommendations led eventually to the development of The Housing of the Working Classes Act in 1890. As a national act governing local authorities, the importance of the 1890 Housing Act was that it represented the first public general act related to housing, and it provided the basic foundation of the long succession of more effective housing statutes from 1919 to the present.[31] With particular reference to the the density concept, the 1890 Act offered more stringent density guidelines for local authorities than the 1875 Health Act. The word "density" was still not used, but the "general execution schemes" presented in the act contained the critical elements of the density idea and recommendations for their control. In particular, section 12(4) addressed the need for some form of density regulations, and while the responsibility for developing such regulations was left to local authorities, the act specified the density-related elements that should be considered:

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[29] *The Public Health Act, 1875*, The General Public Statutes, Victoria 38&39, Chapter 55

[30] G.E. Cherry(1972), p.68

> "For the erection of dwellings for the working classes the local authority shall impose suitable conditions and restrictions as to the elevation, size and design of the houses, and the extent of the accommodation to be afforded thereby, and shall make due provision for the maintenance of proper sanitary arrangements."[32]

Like the Public Health Act, the 1890 Housing of the Working Classes Act led to further improvements in public health and housing conditions, and a further reduction in death rates and infant mortality.[33] By the end of the century, it was apparent that improvements in housing and urban living conditions could be achieved by regulating densities, and as part of an effort to provide the prized conditions of air, sunlight and water, the concern for density regulations became an essential element in the development of early planning legislation.

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[31] *Halsbury's Statutes of England*, Volume 16-Housing(London: Butterworth & Co. Ltd., 1970), p.2

[32] *The Housing of the Working Classes Acts, 1890*, The General Public Statutes, Vol.53&54, Chapter 70

While the statutes of the late nineteenth century represented major legislation in their effect on the course of residential development, the movement towards higher quality housing was still greatly influenced by strong moral judgements. In particular, social reformers argued that the improvement of living conditions was a necessary prerequisite for raising the moral character of the working classes.[34] Individual shortcomings and moral delinquencies were blamed on the poor quality of urban life and the problems associated with overcrowding. The quest for high moral standards plus the basic human necessities referred to in LeCorbusier's major works as "soleil, espace, verdure,"[35] became the foundation of the modern town planning movement. By continuously exposing the social and personal costs of overcrowded and unhealthy housing conditions, Booth, Ruskin and other social reformers gradually gained acceptance for the idea that residential environments should be controlled and planned. Interest in social problems, and changing attitudes towards rapid urban growth and its subsequent housing deficiencies, also contributed to an emergent town planning view.[36]

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[33] G.E. Cherry(1972), p.90

[34] IBID, p.91

[35] LeCorbusier, *The Radiant City* (New York: Orion Press, 1967)

The emergence of a distinctive body of planning theory in the early 1900's marked the first serious attempt by planners to consider the use of residential density restraints and controls. Functional approaches to housing layouts were described in early planning textbooks by Unwin and others, and for the first time, previously accepted design precepts were attacked and criticized. [37] Although sanitary controls and byelaw development contributed to the improvement of urban living conditions, Unwin insisted that street placement and backyard size were more effective regulations for the reduction of overcrowding and density. In his 1912 paper, "Nothing Gained by Overcrowding," it was shown that lower residential densities could be achieved by reducing the proportion of land devoted to roads. As a result, the size of the housing plots could be increased, so permitting more space between housing structures.[38] A smaller area in roadways also implied that transportation and servicing costs decreased as the intensity of development was reduced.

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[36] G.E. Cherry(1972), p.91

[37] W.L. Creese(ed.), *The Legacy of Raymond Unwin: A Human Pattern for Planning*(Cambridge, Mass.: The M.I.T. Press, 1967), pp.68-108

[38] IBID, pp.109-126

When compared to the emergence of the town planning movement in Britain, the application of the density concept in German cities can be regarded as more effective in the improvement of living conditions and the regulation of new residential development. An evaluation of German approaches to density controls is therefore important for understanding the development of the density concept. Although the concerns of reformers in Germany were also directed towards eliminating overcrowding, improving the physical environment and providing healthy housing to the working classes, as they were in Britain, the first attempts at regulating densities came with the development of zoning ordinances. The origins of zoning were linked to building regulations dating back to the 16th century, where the principal concerns were fire and structural safety. By the 18th century, German state governments had begun to issue regulations covering structural solidity and building form, and, gradually, these regulations became standardized and broad in coverage.[39] They were also concerned, in various ways, with density control, since they typically regulated such aspects of development as the unbuilt portions of a lot, building height and placement, and light access. Although it has been shown that many of these density-related elements are evident in British health and housing acts as well, the Germans paid more attention to the inefficiency and ugliness of new urban development, whereas much of the British legislation was directed towards the improvement or renewal of existing housing. The attention to new development is particularly evident when comparing the structure of administrative control and boundaries in the two countries, for unlike Britain, suburbs in German cities were put under city regulations or consolidated with the cities' informal town extension schemes.[40]

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[39] T.H. Logan,"The Americanization of German Zoning"(*Journal of the American Institute of Planners*, Volume 42, #4, October 1976), p.379

While there was a trend towards a uniform application of building regulations and ordinances in German urban areas during the 19th century, in the 1890's a number of cities dropped the concept of total uniformity in favour of developing various zones or districts. For cities such as Frankfurt, Berlin, Stuttgart and Hanover, early zoning ordinances consisted of zones specifying the type of development permitted and the standards required. However, the most notable characteristics of these zoning ordinances was that the regulation of building heights and lot coverage formed the primary basis for distinguishing the zones.[41] In addition to controlling the density of residential development, the "density zones" also had the advantage of segregating undesirable land uses and ensuring that a specified land use was predominant in each zone. By the end of the 19th century, it is apparent that the use of density controls with land use zoning represented a logical extension of the density concept. As will be shown later however, the application of density controls by zones was most influential in the United States, where zoning became one of the foundations of the planning movement.

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[40] P. Breitling, "The Role of Competition in the Genesis of Urban Planning: Germany and Austria in the Nineteenth Century," in A. Sutcliffe, ed., *The Rise of Modern Urban Planning 1800-1914*(London: Mansell, 1980), pp.31-54

[41] T.H. Logan(1976), p.381

While early planning literature emphasized the importance of density controls, the emergence of the Garden City Movement and the use of restrictive zoning in the United States dramatically changed the outlook towards the design of residential areas. In particular, the establishment of density standards became a critical element in the design process, for density was seen as an effective means of ensuring healthy living conditions.

The emergence of the Garden City Movement in the early 1900's marked a change in attitude towards urban development and desired lifestyles. Ebenezer Howard was the father of the movement, and his book *Garden Cities of Tomorrow* contained proposals to limit the physical spread of cities. [42] Upon reaching a predetermined size, further growth would be restricted to planned, self-supporting satellite towns of 30,000 residents. Between developed areas, a belt of permanent open space, primarily used for agricultural purposes, was placed in an effort to provide the desired qualities of clean air, water and sunlight. In offering more open space, Howard attempted to "raise the standard of health and comfort of all true workers of whatever grade- the means by which these objects are to be achieved being a healthy, rational and economic combination of town and country life."[43] The significance of the Garden City formula was that the use of land was not seen purely as an economic venture; instead, Howard and his followers felt that land use applications must contribute to improvements in the quality of life, particularly for the working classes.

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[42] E. Howard, *Garden Cities of Tomorrow* (London: Faber and Faber Ltd., 1946)

Howard's planned garden cities represented a turning point for residential development, since segregated land uses and lower densities were deliberately employed to secure healthy living conditions. Land allowances for individual housing plots were increased in an effort to provide all social classes with essential public amenities and to improve the immediate access to sunlight and clean air. In addition to satisfying basic human needs, lower densities offered private open space to each household. Howard also concluded that allocating sufficient garden space to all housing lots would allow families to experience the advantages of country life. With its underlying desire to provide the advantages of town life in a spacious and healthy setting, the Garden City Movement represented a basic set of beliefs about residential design that are still evident in current planning applications.[44]

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[43] G.E. Cherry(1972), p.121

[44] IBID

By contrast, the initial applications of density standards in the United States at the turn of the 20th century were related to land use segregation rather than to attempts to reduce the intensity of development. Although the United States suffered from housing and living conditions similar to those found in Great Britain, local government in America was corrupted by giant corporations and syndicates,[45] and was increasingly under attack by progressives and reformers. Additionally, private land ownership and subsequent development were fragmented, and residential areas were readily encroached upon by business blocks and light industrial activities. The lack of continuity in residential areas was a problem that government officials would not accept, and initial efforts to prevent mixed land use came in response to the demands of health departments and housing reformers. [46] Combined with height restrictions and an underlying desire to develop homogeneous residential areas, attempts to segregate incompatible land uses were considered to be the foundations of the early zoning movement in the United States. In addition, however, American planners and reformers were aware of the use of zoning in Germany and "used the precedent as part of their argument for its adoption."[47] Visits to Germany by Marsh, Olmsted and other planning advocates led them to accept the value of zoning as a planning tool, and their published descriptions of German zoning systems introduced the concept to American planners.

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[45] M. Scott, *American City Planning Since 1890*(Berkeley ,Ca.: University of California Press,1969), p.40

[46] M. Scott(1969), p.75

[47] T.H. Logan(1976), p.377

By imposing building height and land use restrictions early planners also contolled density. But while zoning was used to "protect single-family residential areas from invasion by factories and apartment houses,"[48] and to "protect lawful investment and not to injure assessed valuations or existing uses," [49] as a planning tool it did not contribute to the improvement of housing for the poor. As Logan concludes, "there is no evidence of their use [zoning ordinances] for housing reform through decreased density of working-class homes."[50] Although writers in the early 1900's emphasized the need to reduce densities in the interests of housing reform, zoning resolutions developed in New York and other cities did not focus on the "decongestion" of housing. The New York resolution of 1916, for example, was "dominated by the financial and commercial interests of the city" and so limited itself to restrictions on the height of skyscrapers and the exclusion of manufacturing from high quality commercial areas. [51] In fact, the Advisory Commission which drafted the resolution bluntly stated that "zoning was designed to promote business interests, not injure them for the benefit of the working class poor."[52]

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[48] M. Scott(1969), p.152
[49] S.I. Toll, *Zoned American*(New York: Grossman Publishers, 1969)pp. 182&183
[50] T.H. Logan(1976), p.382
[51] M. Scott(1969), p.155

In the American applications, then, the priorities of zoning changed from the attempt to improve working class housing conditions to the exclusion of the working classes from middle class housing areas and the imposition of height restrictions on commercial buildings. Originally, in Germany, zoning ordinances were a response to the overcrowded, unsanitary living conditions of the working classes. As in Britain, the objectives of German reformers in the 19th century were to improve the physical environment of cities and provide the working classes with housing and public amenities that would ensure a healthy life. In the drive towards housing and urban reform, the regulation of density was critical, for it was a method of ensuring that desirable housing and environmental standards could be achieved for the working classes. Zoning was thus used to promote the development of new residential areas for the working classes as well as the middle class, through the control of such factors as development density and building bulk.[53] Although advocates of zoning in America initially voiced a similar concern over slum conditions, the improvement of working class housing and the need to reduce "congestion," all of which could be ameliorated by reducing the gross density of development, these conditions were soon overshadowed.[54] In the development of new residential areas, density was not a zoning issue, except in the loose sense that low density was equated with a desirable residential environment. Rather, zoning regulations were directed towards protecting the property values of landowners by excluding conflicting land uses and working class housing. Thus, while zoning represented one of the most important contributions to the early planning movement in the United States, it dramatically changed the role of the density concept, for the regulation of density to ensure healthy living conditions for the working classes was no longer regarded as a planning priority in residential development.

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[52] P. Marcuse, "Housing policy and city planning: the puzzling split in the United States"(*Shaping an Urban World*. Ed. G.E. Cherry, London: Mansell Publishing, 1980)p. 33
[53] T.H. Logan(1976), p.380

C. THE NEIGHBOURHOOD UNIT CONCEPT

Although zoning had considerable impact on housing in the early years of the American planning movement, as a residential planning tool it did not meet the objectives of housing and urban reform.[55] While zoning provided the desirable qualities of homogeneity and exclusion, its application as a residential planning tool was limited to these two qualities. To establish a suitable level of density for a residential area, planners merely used the local zoning restrictions as a guideline, and since the zoning was primarily influenced by existing development, uniformity with surroundings formed the basis of density criteria.[56] With the introduction of the neighbourhood unit concept in the 1920's, however, it was realised that this approach was no longer adequate, especially for the design of new residential areas.

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[54] P. Marcuse(1980), pp.30-36
[55] T.H. Logan(1976), p.380

The contribution of the neighbourhood unit concept cannot be overemphasized, since it has been the most widely used model of residential design for the past 50 years.[57] As developed by Clarence Perry in the books *Neighborhood and Community Planning* and *Housing for the Machine Age*, it formed the basis of modern planning standards, particularly as presented in the influential manual *Planning the Neighborhood* (American Public Health Association, 1960).[58] In addition to providing general design guidelines for residential areas, the neighbourhood unit greatly contributed to the practical influence of the density concept, because it required density controls and guidelines to be viewed as more than just a planning tool to ensure the provision of essential services. As with the layout of streets, open space areas, and commercial facilities, Perry felt that regulated densities determined the "residential environment" and the "character of the neighbourhood."[59] Since one of Perry's objectives in developing the neighbourhood unit was to create a residential environment that would fulfill the social wants and needs of child-rearing families, [40] it is apparent that he believed that density controls could contribute to a desirable and supportive social environment. "Residential density," he thought, "should not be restricted to only the physical environment, but should also involve planning for the social environment." [41]

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[56] S.I. Toll(1969), p.181&182

[57] A.A. Solow, C.C. Ham and E.O. Donnelly, *The Concept of the Neighborhood Unit*(Pittsburgh: Graduate School of Public & International Affairs, University of Pittsburgh,1969)pp.34-38

[58] A.M. Richman, "Planning Residential Environments: The Social Performance Standard"(*Journal of the American Planning Association*, Volume 45, #4, October 1979)p.448

[59] A.A. Solow, C.C. Ham and E.O. Donnelly(1969), p.12

While the fundmental aim of the neighbourhood unit concept is to provide a "guide for the planning, design, development, building and control of new urban or suburban areas,"[42] one of the underlying principles of the model is that it attempted to reflect social norms and traditional needs which were perceived as desirable and characteristic of American society. As a result, the neighbourhood unit has been accepted as "an area representing certain values both for the residents and the larger community."[43] Yet, although the planning-related objectives of the neighbourhood unit are clearly presented by Perry, the social values on which the concept is built have generally been left as vague assumptions, rather than explicity identified and evaluated.

In the context of this thesis, the significance of identifying the values that underlie the neighbourhood unit concept is that they help to account for the progressively changing role and application of the density concept in residential planning. In general, the values assumed by Perry reflect the desire to create homogeneous residential areas where the population shares similar interests and moral standards. Furthermore, Perry felt that the values of a homogeneous population could be most appropriately supported and served by a village lifestyle and physical setting. As a result, the density of housing and the physical relationship (e.g. distance and location) to open space and educational and commercial facilities became the primary design criteria that Perry employed to achieve his conception of neighbourhood life.

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[40] A.B. Gallion and S. Eisner, *The Urban Pattern-City Planning and Design*(New York: D. Van Nostrand Company, 4th edition, 1980), p.223

[41] A.M. Richman(1979), p.449

[42] A.A. Solow et al(1969), p.15

[43] S. Keller, *The Urban Neighborhood: A Sociological Perspective*(New York: Random House, Inc., 1968)p. 92

It is apparent that Perry's own bias towards the single family home and his assumptions about social norms greatly affected the placement and layout of single-family housing.[44] It should be emphasized, however, that it was not the purpose of the neighbourhood unit to provide guidelines or standards for residential densities. This can be attributed to Perry's belief that the normal lot size in any neighbourhood unit "should be as close as possible to that which an informed real estate man would say was best for that type of district."[45] Perry's attitude towards density was limited to the following considerations: how and where different housing types should be segregated; the degree of concentration and representation of single family housing in proportion to multiple housing; and the security or preservation of family-oriented values such as privacy, cleanliness, sanitation, community identity and the protection of economic assets. Because it was assumed that a desirable family life and values could be most effectively fulfilled through the provision of single-family housing, this form of housing development is dominant in applications of the neighbourhood unit concept.

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[44] C.A. Perry, *Housing for the Machine Age*(Philadelphia: William F. Fell Co., 1939)p.108

[45] C.A. Perry(1939), p.98

The segregation of different housing types was also promoted by Perry, since it was assumed that this planning practice would contribute to the preservation of family-oriented values. Perry's segregation by housing type has endured as an essential design consideration in residential areas, and because this approach still helps to maintain real estate values, it continues to be regarded as an indigenous American planning concept.[‘‘]

D. DENSITY STANDARDS

Although many of the design criteria presented in the neighbourhood unit concept are still employed in residential planning, the first genuine attempts to establish generally acceptable density standards did not occur until the publication of *Planning the Neighborhood* by the American Public Health Association in 1948 and 1960, and its British equivalent, *The Density of Residential Areas*, in 1952 and

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[‘‘] Urban Land Institute(1978), pp.115-6

1959. Regardless of the recommended densities presented in these two highly regarded references, it is apparent that the treatment of density is strictly limited to the provision of essential needs and services, and a desire for healthy living conditions.[67] This application of density reflects the fundamental residential design objectives that were rooted in the sanitary reform and garden city movements: protection against overcrowding and the desire to provide the basic human necessities of sunlight, clean air and water to all residents.

As concluded by the APHA, the principal factors governing or limiting housing densities in a neighbourhood are

1. the essential need to provide adequate daylight, sunlight, air and usable open space for all dwellings
2. to ensure adequate space for all community facilities
3. to create a general feeling of openness and privacy. [68]

For practical purposes, the difficulty planners encounter when trying to determine desirable or appropriate densities is that a fine balance must be established among the factors that govern or contol density itself. In other words, the planner must identify the desired standard of living or demanded lifestyle for the neighbourhood, and then try to determine the essential service provisions, health-related factors, and so on, that would help to fulfill the wants of residents. In reaching this balance of density-related factors, there must be consideration for each factor's weight on a scale of importance and whether some factors, which may be regarded as absolute necessities, can only be provided if others are sacrificed. If the need to economize on land is regarded as a physical design objective, for example, what densities are most appropriate to ensure "a general feeling of openness and privacy?" Without compromising, is it possible to determine a level of density that is capable of satisfying both criteria?

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[67] American Public Health Association-Committee on the Hygiene of Housing, *Planning the Neighborhood* (Chicago: Public Administation Service, 1960), p.36

[68] American Public Health Association(1960), p.36-7

The preceding example helps to express the general dilemma that is encountered when trying to understand the density concept. For planners, there are no density standards that can be universally applied for all physical planning objectives and socioeconomic conditions in widely differing local settings. Because of these differences, the "balance" or mix of factors that governs the appropriate level of density is unique to the individual neighbourhood. Moreover, the confusion is compounded by the APHA's recommendation that it is desirable for a neighbourhood to contain a variety of dwelling types, so as to "provide for a normal cross section of the population."[69] It is unrealistic, however, to assume that the mixture of dwelling types can be consistent for all neighbourhoods. The need to provide a range of housing for various income groups and different lifestyles thus presents the problem of determining an appropriate mix of dwelling types in each residential area. To accomplish this, the demand for each of the different dwelling types must be identified. While the APHA concludes that good design practice and site planning can provide the necessary factors and amenities that contribute to "good housing" even at high density levels,[70] design criteria or guidelines are not offered. The mix of dwelling types and the arrangement and relationship of different levels of density represents one of the critical components of neighbourhood planning. It also directly affects the lifestyles and satisfaction of residents, as well as land values and access to all facilities. Unfortunately, these aspects of density and a planning approach for mixed housing development have been completely ignored by the APHA.

To solve the problems associated with density applications and the determination of suitable density levels, the APHA recommends densities for various dwelling types. Although the APHA does not directly promote its recommendations as a "guarantee" for meeting the needs and requirements of neighbourhood residents, it is easy to interpret or accept the recommendations as *absolute* standards. In fact, there is an accompanying warning that some of the "amenities of good housing" will be precluded if the standards are exceeded:

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[69] American Public Health Association(1960), p.27
[70] American Public Health Association(1960), p.36

> "Although higher densities for these dwelling types may be compatible with standards for light and air, it is doubtful whether densities beyond these maxima will permit sufficient flexibility in design to ensure privacy and other amenities which should be obtained with one- and two-family dwellings." [11]

The recommended standards are summarized in Table 1. For most neighbourhooods, the density standards for one and two-family dwelling types, ranging from five to sixteen units per acre, have the greatest implications for residential design. The APHA, however, do not reveal how these density standards were determined or the criteria that were used to arrive at the specific values.

Since the beginning of the modern planning movement, the desire to set residential density standards has been a common design-related objective. Table 2 provides evidence of this tendency, and it also illustrates the lack of agreement amongst planning theoreticians. The proposed density standards range from Frank Lloyd Wright's one dwelling unit per acre to Goodman and Goodman's one hundred dwelling units per acre. In comparison, the density standards proposed by the APHA do not help to determine a generally acceptable standard, since the 5 to 85 units per

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[11] American Public Health Association(1960), p.38

TABLE 1

RECOMMENDED DENSITY STANDARDS

DWELLING TYPE	NET DWELLING DENSITY (Units per Acre of Net Residential Land) Standard: Desirable	NET DWELLING DENSITY (Units per Acre of Net Residential Land) Standard: Maximum
ONE- AND TWO-FAMILY		
1-family detached.............	5	7
1-family semidetached or 2-family detached	10	12
1-family attached(row) or 2-family semidetached	16	19
MULTI-FAMILY		
2-story......................	25	30
3-story......................	40	45
6-story......................	65	75
9-story......................	75	85
13-story......................	85	95

Source: American Public Health Association-Committee on the Hygiene of Housing. Planning the Neighbourhood. Chicago: Public Administration Service, 1960, p. 39.

TABLE 2

RECOMMENDED DENSITY STANDARDS BY PLANNING THEORETICIANS THROUGHOUT THE DEVELOPMENT OF THE DENSITY CONCEPT

Year	Author, Title, Sub-Area	Density per Gross Residential Acre
1934	(T. Adams) Design for Residential Areas	
	Residential Section	5-6 d.u.
1910	(E. Chambless) Roadtown	20 d.u.
1923	(A. Comey) Regional Planning Theory "Sixth Class Size City"	4 d.u.
1924	(Le Corbuiser) Urbanisme	
	City	125 people
	Garden Cities	n.a.
1945	(Le Corbusier) ASCORAL Les Trois Establissments Humains	
	Linear Town	
	High Density	40 d.u.
	Low Density	10 d.u.
1929	(H. Ferriss) Metropolis of Tomorrow	50 d.u.
1890	(T. Fritsch) Stadt der Zukunft	
	Inner Ring	4-10 d.u.
	Outer Ring	30-46 d.u.
1923	(E. Gloeden) Inflation der Gross Stadte	
	Inner ring	50 d.u.
	Outer ring	10 d.u.
1947	(P. Goodman and P. Goodman) Communitas	
	City of Efficient Consumption	100 d.u.
	New Commune	
	Urban node	75 d.u.
	Urban belt	½ d.u.
	Semirural belt	½ d.u.
	Production Center	n.a.
1945	(Gropius and Wagner) A Program for City Reconstruction	
	Small Unit	10 d.u.
	Large Unit	4 d.u.
1945	(H. Herrey, et.al.) Organic Theory Residential Unit	3-12 d.u.
1893	(E. Howard) Garden Cities	8-10 d.u.
1946	(Le Corbusier, J. Justement) New Cities for Old	
	Inner ring	35 d.u.
	Middle ring	10 d.u.
	Outer ring	2-3 d.u.
1947	(A. Klein) Man and Town	25 d.u.
1934	(R. Neutra) Rush City Reformed	100,15,6
	(4 types of residential areas)	3 d.u.
1929	(C. Perry) Neighbourhood Unit	5 d.u.
1946	(S. Sanders & A. Rabuck) New City Patterns	
	Neighbourhoods	5-60 d.u.
1944	(J.L. Sert) Human Scale in City Planning	
	Residential Units)	3-5 d.u.
1945	(L. Wolfe) The Reilly Plan Reilly Unit	10 d.u.
1932	(F.L. Wright) Broadacre City	¼-1 d.u.

Modified from S. Sussna, "Residential Densities or a Fool's Paradise," Land Economics, Volume 49, #1, February 1973, p. 9

acre range presented in Table 1 merely falls in the middle of the density spectrum shown in Table 2. Unfortunately, the great disparity of density standards in the planning literature only serves to reduce their credibility in practical applications.

In evaluating the purpose of the APHA's density standards, it must be concluded that an attempt has been made to develop an "ideal" density, where all of the needs and requirements of residents can be met. This is also true of the diverse selection of density standards presented in Table 2. But, because of the different values and changing planning needs that are reflected in the standards proposed in the planning literature and the need to consider local conditions, it is difficult to evaluate and rank the effectiveness of each of the recommended standards. As an example, many planning advocates in the past associated low density housing with the fulfillment of family lifestyles and needs. In contrast, other density standards have been more mindful of the cost of providing community facilities, transportation services and the like.[72] Density standards also vary nationally, for planners from Britain tend to advocate higher densities than those in the United States.[73] Since it has been observed that Ebenezer Howard's density concept, which has "safeguarded light, provided gardens and recreation space is holding up well to the test of time," Sussna has argued that the garden city densities still have some credibility.[74] On the other hand, Jane Jacobs argues that the garden city advocates confused high densities with overcrowding and that low densities were simply used as a preventative measure against overcrowding.[75] For Jacobs, six dwellings or fewer to the net acre is a low density. Although Sussna, Jacobs, the APHA and other planning theoreticians give the impression that the most appropriate level of density for single family housing falls somewhere between five and ten dwelling units per acre, it is still apparent that the optimum or ideal densities estimated by planning "experts" are as varied as the experts themselves.[76] But in the quest to recommend suitable/appropriate density standards, the purpose of the density concept and the design factors which should affect the level of density appear to have been neglected:

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[72] S. Sussna, "Residential Densities or a Fools Paradise" (*Land Economics*, Volume 49, #1, February 1973)p.10

[73] G. Drover, "Urban Density-My Space and Your Space"(*Canadian Welfare*, Volume 50, #3, May-June 1974)pp.17-18

> "The target is to regulate density by prescribing the allowed number of dwellings and floor space per acre on the basis of design controls to ensure compliance with a preconceived plan for a particular neighbourhood development or new town." [77]

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[74] S. Sussna(1973), p.10
[75] J. Jacobs, *The Death and Life of Great American Cities*(New York: Random House, Inc., 1961), pp.205-6
[76] G. Drover(1974), p.16
[77] S. Sussna(1973), p.10

E. DEVELOPMENT OF THE DENSITY CONCEPT SINCE 1960

After the publication of *Planning the Neighborhood*, the planning literature fails to approach the density concept with any new perspectives regarding its role or purpose. As presented by such authors of representative planning texts as Keeble, [78] Gibberd, [79] Gallion and Eisner, [80] Ratcliffe, [81] and Stevens, [82]the primary function of the density concept continues to be limited to ensuring the provision of essential services and the basic health-related needs of light, sunshine, air and privacy to all residents. While there is a common agreement that alternative forms of housing should be offered in a neighbourhood, and that effective design practice and site planning must accompany density controls to provide the desired living environment, the bulk of planning literature suffers from the same deficiencies as *Planning the Neighborhood:* the discussion of mixed dwelling types is biased towards single family housing development; there is a failure to accept and anticipate changing needs in housing and, subsequently, changing density level requirements; and design recommendations or guidelines are limited and directed towards single family housing layouts.[43] For Keeble[44] and others, the failure to effectively address the problems associated with the density of mixed developments and the role of design principles and site planning can be attributed to a reliance on recommended density standards. By applying these standards, the authors have assumed that the design-related considerations will be controlled sufficiently to secure the factors that contribute to "good" housing. While it is possible that density standards contribute to the layout of residential areas by regulating the intensity of development, the architectural component of design has been neglected:

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[78] L. Keeble, *Principles and Practice of Town and Country Planning*(London: The Estates Gazette Limited, 1969), pp.254,259,262,263,269

[79] F. Gibberd, *Town Design*(London: The Architectural Press, 1970), p.267

[80] A.B. Gallion and S. Eisner(1980), p.337

[81] J. Ratcliffe, *An Introduction to Town and Country Planning*(London: Hutchinson & Co. Ltd.,1974), pp.291,295

[82] P.H.M. Stevens, *Densities in Housing Areas*(Dept. of Scietific and Industrial Research, London: Her Majesty's Stationary Office, 1960), pp.5-11

> "The arrangement of various space, masses and wall elements by architectural design could have a profound influence on residential dwellings and thus affect or alter the assumptions as to density controls, but with few exceptions, architectural influence has been excluded from residential areas." [45]

Although the planning literature after *Planning the Neighborhood* generally recognizes the importance of allowing for neigbourhood densities that are high enough to permit mixed development, it is obvious that the single-family home continues to be associated with desirable living conditions and the most effective method of catering to the essential needs of all residents. In fact, Keeble bluntly states that

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[43] L. Keeble(1969), pp.270-282
[44] L. Keeble(1969), pp.256,259
[45] L.A. Stein, *The Relevance of Legal Density Controls in Town Planning to the Human Use of Space*(Toronto: Dept. of Urban & Regional Planning, University of Toronto, 1976), p.12

"low density is good and high density is bad."[66] Since the origins of the planning movement, "lower density has always been interpreted as synonymous with higher quality."[67] The advantages of the single family house are well documented: it symbolizes the family as a unit; the health-related factors of clean air, light and privacy are normally ensured; there is more outdoor space for recreation; and the house can be maintained or remodeled at the discretion of the owner.[68] As an alternative form of housing, high density apartments and condominiums have been traditionally regarded as poor environments for a healthy family life and raising children. It is widely held that high density development induces danger to children while creating general inconveniences, a lack of privacy and mental stress. [69] The design of high rise apartments, in particular, encourages vandalism and crime.[70] Furthermore, to support the merits of the single family house, Ratcliffe and Keeble have argued that apartment development is not economically feasible:

> Flats can be said to impose greater costs of construction per dwelling, particularly in respect of combating the increased structural stress, the supply of lifts, sound insulation, rubbish chutes, fire escapes, and general maintenance of common parts."[71]

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[66] L. Keeble(1969), p.143

[67] Urban Land Institute(1978), p.153

[68] K. Lynch, *Site Planning* (Mass.: The M.I.T. Press, 1971), p.297

[69] J. Ratcliffe(1974), p.320

[70] T.F. Saarinen, *Environmental Planning - Perception and Behavior*(Boston: Houghton Mifflin Company, 1976), pp.73-76

[71] J. Ratcliffe(1974), p.320

Regardless of the living conditions and costs associated with high density, it is apparent that there has been a distinct desire to limit this form of development in suburban areas in North America. In general, the literature succeeding *Planning the Neighbourhood* opposed the development of high densities in residential areas on the basis of two previously implied misconceptions: that single family houses provide living conditions that are superior to all other types, and that high density apartments and rental units downgrade an area since they attract people who fall into a lower social status group. These misconceptions date back to the early zoning movement in America, when the central motivation of ordinances was to segregate undesirable socioeconomic classes from middle class families who wanted to protect their property values while maintaining a homogeneous social environment. However, with changing social trends, the demand for alternative forms of housing and improvements in technology, it is no longer appropriate to approach residential design and planning from the perspective of the middle class family owning and occupying a detached house in a spacious yard. By limiting the role of the density concept to ensuring the provision of essential services and health-related factors, the planning literature has simply failed to account for changing social and physical needs and technological advances in housing construction.

III. CHAPTER THREE

THE HOUSING MARKET: CANADIAN TRENDS AND IMPLICATIONS FOR THE DENSITY CONCEPT

A. CHANGES IN HOUSING NEEDS

Since the early 1960's, societal trends and changing demands in the North American housing market have dramatically affected the design of suburban neighbourhoods, with large implications for the density concept. While these societal trends represent changing values and attitudes towards housing, living conditions and lifestyles, the specific trends which directly affect the density concept can be summarized as follows:

1. a greater percentage of discretionary income is being paid for housing;[1]
2. the birth rate has fallen; [2]
3. the population of single adults is increasing(divorced, widowed or never married);[3]
4. the number of households has been increasing, but their average size has declined in

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[1] Urban Land Institute, *Residential Development Handbook* (Washington: Urban Land Institute, 1978), p.19

[2] Urban Land Institute(1978), p.20

[3] Urban Land Institute(1978), p.22

reflection of patterns of family formation;[4]

5. changes in transportation and communications have contributed to new settlement patterns, encouraging lessened attachment to place, long distance friendships and high levels of mobility;[5]
6. a greater emphasis on social equity, recognizing the heterogeneous nature of the population, has demanded a more pluralistic view of the neighbourhood[6]

In combination, these trends have reflected a major shift in household composition. One result has been that the single-family dwelling dominance of the Canadian housing market has been disrupted, to meet the needs and lifestyles of single adults, childless couples, and so on;

> "With smaller households, the demand may increase for multifamily housing, townhouses, and smaller detached houses. Housing which suited the needs of middle-aged couples with school children may not satisfy the needs and preferences of young households. The young unmarried adult population tends to be less concerned with seeking permanent housing. This suggests that the demand for rental housing, particularly apartments, will increase." [7]

Yet, although the popularity of high density housing units continued to grow throughout the 1960's and into the 1970's, the demand for multiple housing cannot be attributed solely to changes in household size and formation. As recent literature indicates, the increased demand for multiple housing also reflects the escalating costs of housing in Canada. Since the early 1970's, Canadians have been spending more and more of their income on housing, because housing prices have increased much more rapidly than inflation and the general price level.[8] In evaluating 25 urban areas across Canada, the Greenspan report concluded that "lot prices increased at a rate over 40% greater than the general rate of inflation. Lot prices exploded relative to the price of other goods."[9] Although the land component is often regarded as a major culprit in soaring housing prices, the cost of the house itself has also risen dramatically, due to increased building standards, escalating mortgage rates and the increased costs of building supplies and labour.[10]

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[4] IBID
[5] A.M. Richman, "Planning Residential Environments: The Social Performance Standard"(*Journal of the American Planning Association*, Volume 45, #4, October 1979), p.449
[6] IBID
[7] Urban Land Institute(1978), p.25

In the Canadian housing market, such factors as the large increase in the 25 to 35 year age group and higher household incomes greatly contributed to the housing price boom of the early 1970's. While it has been suggested that the significant increases in housing demand were due to a period of constrained supply, higher housing prices were also the result of a change in the purchase motives of the

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[8] S.M. McFadyen and R.J. Hobart, "Inflation and Urban Home Ownership"(*Urban Housing Markets: Recent Directions in Research and Policy*, Ed. L.S. Bourne and J.R. Hitchcock, Toronto: University of Toronto Press, 1978)p.164

[9] D.B. Greenspan, *Down to Earth*(Federal Provincial Task Force on the Supply and Price of Serviced Residential Land, Volume 1, 1978)p.5

[10] E.L. Snider, *Density and Behavior*(Edmonton: Alberta Environmental Research Trust, 1977)p.1

Canadian consumer. In studies by McFadyen and Greenspan, for example, it was concluded that the priorities of housing purchasers had shifted from the need for shelter and living space alone to investment expectations. Therefore, housing ownership was increasingly based on the speculation that capital gains could be expected in the future.[11] This hypothesis is supported by the price of rental housing, for rental accommodations were available at market prices much below the real resource costs of ownership.[12] Because housing for many Canadians represented a speculative investment, the market responded with higher and higher prices; "investors" were willing to pay more in expectation of a profitable return and a curb against inflation.

As single family house prices inflated, however, a proportionately larger sector of consumers were eliminated from the housing market. It therefore became apparent that alternative, more affordable forms of housing had to be offered. The housing market has responded to this need in a variety of ways, all of which have served to increase the density of suburban development. Average lot sizes have been reduced, new types of detached housing have been introduced (e.g. zero lot line houses), and the amount and diversity of multiple housing have been greatly increased. These trends are expected to continue. For example, according to Alberta Housing and Public Works, the forecast for the housing mix in Alberta by 2001 is approximately 45 per cent single detached and 55 per cent multi-family, as compared with a split of 65 per cent to 35 per cent in 1976.[13] Table 3 provides a detailed breakdown by five year intervals of the proportionate change of multiple housing in the Alberta housing market. This shows a steady decline in the supply of single family housing, with a complementary increase in the supply of rental housing (Table 4). This can be attributed to the changes in household structure desrcibed earlier. In addition, the demand for rental housing will greatly depend on Canadian mortgage and lending rates. If the current trend of high interest rates continues, a greater proportion of the housing market will seek rental accommodation rather than home ownership. Therefore, it can be concluded that there will be two basic trends in the Canadian housing market: a shift from single family houses to multiple housing, and from ownership to rental occupancy. The trends are not necessarily the same.

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[11] S.M. McFadyen and R.J. Hobart(1978), p.175
[12] IBID

B. MULTIPLE AND DETACHED HOUSING TYPES

In the housing and real estate literature, such terms as apartment, condominium, and multiple housing are used very loosely, and betray a confusion between the concepts of tenure and structural form. Regardless of the housing structure, there are two basic types of tenure: rental or

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[13] Alberta Housing and Public Works, *Alberta Housing Requirements to 2001*(Policy and Planning Division, 1979)p.2

TABLE 3

ESTIMATED FUTURE OCCUPIED HOUSING STOCK IN ALBERTA BY TYPE OF STRUCTURE

Census	Single Detached	% Total	Single Attached	% Total	Apartment and other	% Total	Total Occupied Stock
1976	372,420	64.7	43,645	7.6	195,225	27.8	575,290
1981	438,300	59.4	68,700	9.3	230,600	31.3	737,500
1986	507,700	54.9	101,600	11.0	315,100	34.1	924,400
1991	575,200	51.1	142,100	12.6	409,300	36.3	1,126,000
1996	640,100	47.7	190,500	14.2	512,600	38.2	1,343,200
2001	704,200	44.6	247,800	15.7	627,000	39.7	1,578,900

TABLE 4

ESTIMATED FUTURE OCCUPIED HOUSING STOCK IN ALBERTA

Census	Owned	% of Total	Rented	% of Total	Total
1976	372,825	64.8	202,460	35.2	575,290
1981	478,800	64.9	258,700	35.1	737,500
1986	595,300	64.4	329,100	35.6	924,400
1991	714,500	63.4	412,000	36.6	1,126,500
1996	835,200	62.2	508,000	37.8	1,343,200
2001	959,700	60.8	819,200	39.2	1,578,900

self-ownership. Although many owners rent detached houses for profit, and so on, renting is commonly associated with housing forms where more than one unit is contained. As defined in Webster's Third New International Dictionary, an apartment is:

> "A room or a set of rooms used as a dwelling and located in a private house, a hotel or a building containing only such rooms or suites with the necessary passages and hallways ...... a building made up of individual dwelling units."

From this definition, an apartment could be located in a number of building forms, such as a house, duplex, or high-rise multiple-unit building. In the housing literature, however, an apartment is generally taken to represent a rental unit, and the term refers more to the type of tenure than to the building form. Although apartments are most commonly associated with multi-storey structures, their distinguishing characteristic, from a structural perspective, is that they are designed as rental units and may therefore lack many of the amenities of housing for permanent occupancy. When compared with housing designed for self-ownership, this commonly differs in the quality of construction and interior finishings, in methods of sound control, and in the life expectancy of the building. This has led the Urban Land Institute to conclude that "a for-sale unit will be completely different from a competitively priced rental unit of the same size."[14]

The distinguishing characteristic of condominiums is also the type of tenure. Unlike an apartment, a condominium is a self-owned housing unit contained within a building of more than one unit. But unlike a continuing co-operative, where the members mutually agree to build and operate housing to be owned and occupied collectively,[15] a condominium is individual, outright ownership of a unit, although certain facilities and obligations may be held in common. The Urban Land Institute describes a condominium as

> "actual ownership of real property: ownership in fee simple of a cubic air space including only interior surfaces .... A condominium is not a design solution but a form of ownership."[16]

That definition to the contrary, however, condominiums in suburban areas have most commonly been associated with a design known as the row house or the townhouse. This structure usually refers to one or two storey attached units that in many cases include a private driveway and yard. Only recently has there been a strong tendency for high-rise and walk-up apartments to be converted into self-owned units, or for high-rise and walk-up complexes to be constructed for sale as condominiums. Thus, a condominium is a self-owned unit found in a variety of housing types, including walk-up, high rise and row house/townhouse structures.

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[14] Urban Land Instiute(1978), p.130

[15] M. Dennis and S. Fish, *Programs in Search of a Policy: Low Income Housing in Canada*(Toronto: Hakkert Press, 1972)

[16] IBID, p.131

Multiple housing is also a term that has been widely used in the housing literature. Essentially, multiple housing includes both rental and self-owned forms of occupancy. It therefore embraces condominiums, apartments, duplexes, walk-ups and all other housing structures that are designed to contain more than one housing unit.

C. APPLICATION OF THE DENSITY CONCEPT: PROBLEMS AND CONFLICTS

As the high costs of land, building materials and labour have pushed the price of a single family house beyond the financial reach of a proportionately larger sector of the Canadian population, the housing market has responded by implementing a variety of density-related measures, such as an increased dependence on apartments and condominiums and a reduction in lot sizes. While technical improvements in high density construction have ensured that minimum standards for air, light, sanitation and safety can be met, the increase in development densities in suburban neighbourhoods has created many problems and conflicts. In general, these can be summarized as follows:

1. An entrenched reluctance to accept multiple housing as a permanent solution to inflated housing costs and as an alternative to the single family house.
2. A general failure to cope with the social consequences of approving high density

developments in predominantly single family neighbourhoods

3. The poor design and careless placement of high density projects by developers and the failure of the planning system to regulate these projects through appropriate design criteria.

The significance of these problems lies in the relationship between the poor design and quality of some multiple housing and the strong resistance to its planning approval in many suburban neigbourhoods. As Huntoon concludes, much of this opposition is based on a reluctance to discard the traditional values associated with the single family house:

> "The key problem is not the volume of housing being built but the disproportionately long time it takes for new development concepts to be accepted. And the solution to this problem can only come after we overcome our reluctance to accept anything other than the single family house as the predominant, and often the only, form of housing in our suburbs."[17]

The image of multiple housing has been detrimental to its acceptance as an alternative form of housing in suburban neighbourhoods, and it is unrealistic to assume that the established residents of a neighbourhood will calmly accept higher densities. It has also been observed that the opposition to the development of multiple housing usually comes from the owners of private houses in the adjacent blocks, though proximity is not necessarily a factor. A project's acceptance in a suburban neighbourhood depends "not only on location, access and other physical factors, but also on the attitude of nearby residents and their perception of what the density change will mean to their neighbourhood."[18] For those residents who oppose multiple housing developments, a density change represents a threat to existing lifestyles and the deterioration of neighbourhood quality. It is therefore in conflict with everything that the concept of "neighbourhood" is meant to stand for:

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[17] M.C. Huntoon, *PUD: A Better Way for the Suburbs*(Washington: The Urban Land Institute, 1971)p.9

> "The sociological conception of the neighbourhood emphasizes the notion of shared activities, experiences and values, common loyalties, and perspectives, and human networks that give to an area a sense of continuity and persistence over time."[19]

Previously, density regulations and the planning of conventional neighbourhood units were seen as aids to middle class property holders for the preservation of property values.[20] A high density project of any kind is a threatening intruder, and homeowners assume that their property values will decline. In their own defence, they have argued that developers are constructing housing that, in many cases, is incompatible with existing residential development. Recent examples of this type of opposition have occurred in the West Jasper Place area of Edmonton, where homeowners reacted strongly against the development of a project with zero-lot-line houses.[21] Single family homeowners have also argued that higher densities will result in the excessive use of community education and recreation facilities, and that local traffic flows will increase. Since they are the primary land owners in the neighbourhood, single-family residents associate the overburdening of community facilities with an increase in their property taxes,[22] as well as with a decline in their enjoyment of the amenities that are conventionally associated with the neighbourhood unit.

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[18] Urban Land Institute(1978), p.39

[19] S. Keller, *The Urban Neighbourhood: A Sociological Perspective*(New York: Random House, Inc., 1968), p.91

[20] G. Drover, "Urban Density - My Space and Your Space" (*Canadian Welfare*, Volume 50, #3, May-June 1974), p.17

D. THE ROLE OF DESIGN: HOUSING DENSITY OR NEIGHBOURHOOD DENSITY?

Regardless of whether the protests of single family homeowners are justified, it is apparent that with the further development of higher density housing in suburban areas, their opposition will continue and, perhaps, intensify. Although the press has covered the recent protest actions of resident groups, few if any studies have dealt with homeowner reactions to the density of suburban neighbourhoods, and the residential design approaches that can be employed to provide higher density housing forms while alleviating the concerns of single family residents. Instead, the literature has been focused on the pathological and social implications of living in high density housing, from the standpoint of the occupants. It has been observed, for instance, that high density living accommodations tend to intensify a person's reactions and attitudes towards a situation, particularly if that situation is viewed in a negative way.[23] But while studies of crowding and high density living have provided methods of improving the design of multiple housing to alleviate such problems as social isolation and anxiety, they have failed to consider how higher density housing affects neighbourhood residents. In other words, the research has been directed towards the implications for housing design rather than the implications for residential or neighbourhood design.

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[21] *Edmonton Journal*, December 1,1980, February 9,1981, February 23,1981

[22] M.C. Huntoon(1971), p.14

As shown in the review of the density literature, planners have been preoccupied with the arrangement and mix of different housing types in suburban neighbourhoods since the beginning of the planning movement. While Perry, the APHA and others greatly contributed to the improvement of residential environments through the recommended provision of public amenities, density standards and segregated land uses, their planning formulas were conceived on the basis of single family housing development. And although many components of these planning formulas are evident in suburban neighbourhoods today, the increasing demand for different types of housing caused by changing market conditions and alternative lifestyles has created new problems that Canadian planners are only beginning to address. The physical structure of suburban neighbourhoods has already changed to meet the need for greater proportions of multiple housing. Planning-related problems have also come to the surface, because planners have not been very successful in devising ways of increasing densities that are acceptable to neighbourhood residents, and particularly to single-family homeowners.

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[23] J.L. Freedman, *Crowding and Behavior*(San Francisco: W.H. Freeman and Company, 1975), pp.56,89,120,121

The development staging of different types of housing is another factor that has contributed to the conflict between single-family homeowners and planners and developers. In suburban neighbourhoods where single-family houses were built at an early stage because of favourable housing market conditions, the change to multiple housing development represents a threat to homeowners. There is a greater likelihood that conflict will erupt when high density development is phased over several years. Since increasing pressure is likely to be placed on planners and municipal governments to change zoning to accommodate higher densities and develop vacant land for multiple housing, it can be concluded that the density-related protests will continue and tension between single family homeowners and developers and planners will intensify. In essence, planners find themselves on the horns of a dilemma, torn between the pressures of the housing market and the special interests of single family homeowners. The most likely compromise is to try to find a way of introducing multiple housing and other higher density housing forms into suburban neighbourhoods where single family development has occurred at an early stage, without disrupting the residential environment.

One of the special planning difficulties of this situation concerns the provision of public amenities and facilities, or the relationship between neighbourhood population and the availabilty of amenities. In the original conception of the neighbourhood plan, the provision of public facilities and amenities is based on the need of a projected target population. From this projection, such facility characteristics as type, size, location, and proximity to the neighbourhood population are determined. In many cases, however, the unanticipated development of multiple housing increases the population density above the planning projection for the neighbourhood. Not only does this force essential services to be upgraded, it also implies that many of the facility characteristics must also be changed for a different population composition. To accomplish an effective upgrade means spending public money, and this will be reflected in possible tax increases to landowners. Furthermore, upgrading public facilities means that planners are changing the fundamental structure of the neighbourhood plan, since the physical relationship of the zoned land use districts will be altered, the mixture of housing types will be different, and the concentration of the neighbourhood population, which affects the locational characteristics of public facilities, may not be the same as originally conceived. Therefore, in addition to finding a way of increasing suburban densities that is acceptable to neighbourhood residents, a cost effective method of upgrading public facilities and amenities must also be determined - a method that follows the development guidelines and objectives established in the plan and does not negatively affect the physical or social environment of the neighbourhood.

While the problems related to increases in the density and total population of suburban neighbourhoods have not been addressed in the housing literature, the design of multiple housing is a significant factor in the successful introduction of higher density housing types in suburban environments. The acceptance of multiple housing by neighbourhood residents will greatly depend on the ability of planners and developers to design projects which compare favourably with the conventional single family house.[24] This implies that multiple housing must be compatible to detached housing in its profile, layout, placement, and general physical features and that it must provide similar living conditions, conveniences and other amenities to meet the needs of Canadian families. From the current literature on the problems of high density and overcrowding, it appears that design changes offer possible solutions to the successful development of higher suburban densities. While these solutions or recommendations are still tentative, the significance of these design improvements is that they provide a guide to the likely future appearance of suburban environments.

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[24] R.B. Zehner and R.W. Marans, "Residential Density, Planning Objectives and Life in Planned Communities"(*Journal of the American Institute of Planners*, Volume 39, #5, September 1973), p.337

In addition to the pathological and social implications of high density living, literature on multiple housing has also focused on life in planned communities and the reaction of residents towards their environment. Still, many of the design principles that have been used successfully in these communities can be employed for multiple housing projects in partially developed neigbourhoods. A major study by Lansing et al. [25](condensed in the article by Zehner and Marans) . compared the quality of residents' lives in planned residential environments to more conventional neighbourhoods of single-family housing.[26] The results indicated that residents living in the planned higher densities rated their environments as high or higher than those in the conventional low density neighbourhoods. In evaluating the contributory factors, it is apparent that the multiple housing areas were designed to incorporate many of the advantages and features that are commonly associated with neighbourhoods of single-family dwellings. However, the study concluded that some factors of housing are more indicative of the residents' quality of life than others, and as result, the provision of these factors strongly influenced the resident's rating of their environment.[27] For example, one of the factors that developers tend to neglect in the design of multiple housing is the need for recreation space and private yard space. By providing a patio or small fenced-in yard for each household and including a combination of open space, walkways and recreation facilities(tennis courts, playgrounds) as design requirements for the project, developers of the highly-rated, multiple housing fulfilled the needs for outdoor activity space for the majority of the resident families. [28] Furthermore, the study showed that the provision of private yards secured many health-related factors, such as privacy, quiet and safety from traffic for children. In addition, the provision of private yard space and project recreation facilties has important lifestyle implications to other residents in the neighbourhood. There is less stress on public facilities, despite the larger population, and the multiple housing residents are less visible, giving the impression that the increase in population represented little or no physical or social impact on the neighbourhood environment.

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[25] Lansing, J.B., R.W. Marans and R.B. Zehner, *Planned Residential Environments* (Ann Arbor: Institute for Social Research, The University of Michigan, 1970)

[26] IBID

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[27] R.B. Zehner and R.W. Marans(1973), p.340
[28] R.B. Zehner and R.W. Marans(1973), p.342

Although the research by Lansing et al. represents one of the most comprehensive studies on resident reaction to living environments, recent planning literature has approached the deficiencies of multiple housing design with solutions that stress many of the desirable features of single family housing ownership. Schreier has concluded that Canadian developers have failed to realize that "acceptable multiple-house forms would have to possess occupancy characteristics normally associated with traditional housing."[29] The attributes which are considered to have a decisive impact on the acceptance of higher density housing are car access, identity, and privacy. In particular, he considers the physical relationship between car and resident to be one of the critical determinants of multiple housing design, yet it has commonly been overlooked by developers and designers. In the majority of multiple housing projects, the car is relegated to a communal parking lot at a distance from the dwelling, and parking overflows into surrounding streets, creating tension between homeowners and project tenants. By separating the car from the resident, the concept of ownership and control is removed. As Schreier indicates, this separation in current multiple housing forms is unnecessary, and imaginative design can accommodate up to 25 dwellings per acre while ensuring a close proximity between car and dwelling.[30]

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[29] W.E. Schreier, "Residential Density: Problems and Prospects"(*Habitat Canada*, Volume 20, #1, 1977)p.17

Multiple housing developers have also been criticized for designing living environments that lack identity, status and character, features which are part of housing tradition and homeownership.[31] To secure these desirable qualities, developers could provide the opportunity for each resident's housing unit to enjoy physical presence on a public street.[32] Attempts to create a "communal" feeling and central open space have resulted in circular or clustered housing forms where the residents associate themselves as part of a co-operative or group. In many multiple housing projects communal design means the backs or sides of units face the street, making the appearance of the project to nearby homeowners unattractive. However, without a street address or presence on the street, the resident is confined and cannot be identified by others in the neighbourhood. There is also the distinct relationship between the car and housing identity, for immediate car access to the street simulates a driveway in a conventional single family house, and removes cars from public streets. In addition to providing a closed yard for each resident, privacy can be improved by landscaping and avoiding multi-storey projects. Along with the careful arrangement and placement of dwellings, these improvements would enable developers to secure the qualities of audible and visual privacy at densities higher than those commonly associated with the development of single family dwellings. In addition to improvements in privacy for multiple housing occupants, building arrangement, placement and site landscaping greatly determine the general acceptance of the project by nearby homeowners in the neighbourhood. Combined with individual driveways and private yard space, landscaping in a multiple housing project can simulate the physical characteristics of single family dwellings.

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[30] W.E. Schreier(1977), p.18
[31] W.E. Schreier(1977), pp.17&18
[32] IBID

E. THE TRADEOFF: LIVING CONDITIONS OR ECONOMY?

The preceeding review was intended to indicate that multiple housing can be improved in terms of occupant livability, particularly bearing in mind the practical need to increase densities in suburban neighbourhoods. Through careful design, developers can offer multiple housing that contains most of the characteristics of the conventional single family dwelling, thereby making an increase in density more acceptable to suburban homeowners. The results are not necessarily "cheap"; on the contrary, the availablity of "luxury" townhouses or condominiums is just one of the many changes in the suburban housing market. But the efforts by developers to provide cheaper alternatives to the single family dwelling generally represent a tradeoff between the economic costs of construction and living conditions, where the quality of living conditions is typically sacrificed in order to minimize economic costs.

However, the continuous construction and general acceptance of poor quality multiple housing forms suggests that the priorities of housing requirements have changed to the point where living conditions are being sacrificed in order to attain "homeownership" at an affordable price. As Schreier concludes, North Americans have always regarded homeownership as a symbol of status and identity, and in part, personal success has been measured by the quality of housing.[33] While developers have been able to fulfill the need for homeownership through current design practices in multiple housing, developers do not attempt to simulate or provide many of the features and qualities associated with the single family dwelling. Due to financial limitations and a lack of desirable alternatives, Canadians with incomes that cannot meet the costs of owning a single family house have no choice but to accept the poor multiple housing living environments dictated by developers. As a result, although the concept of "homeownership" may be financially and economically fulfilled through higher density housing, Canadians must be prepared to "tradeoff" living conditions.

The problems resulting from this tradeoff also affect single family homeowners. As indicated previously, homeowners in suburban neighbourhoods react negatively to housing development which they regard as inferior in quality, appearance and status to their own. In West Japser Place and other Edmonton suburban areas, opposition to multiple housing has occurred in suburbs where the single family housing was developed at an early stage. Under these circumstances, there have been two types of conflict associated with homeowners:

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[33] W.E. Schreier(1977), p.18

1. Opposition to multiple development built after the single family, and originally conceived as part of the neigbourhood plan for housing;
2. Objections to proposals (often approved) to increase the densities of some vacant sites, which would result in changing the plan and increasing the neighbourhood population density.

In view of the market trends that have already been described, it can only be concluded that the pressure to change neighbourhood plans to accommodate increases in densities for vacant sites will intensify. Under market conditions where multiple development will meet the housing needs of an increasingly larger proportion of Canadians in the future, many developers will be in the position to design and build projects with little consideration for existing development, a trend that will only intensify the conflict between developers and single-family homeowners in suburban neighbourhoods.

In addition to this growing conflict, by yielding to the demands of the housing market, planners risk encountering a host of problems related to lifestyles and living conditions. The approval of multiple housing projects directly increases neighbourhood density, creating a greater strain on essential services, public facilities and transportation routes. This directly affects all neighbourhood residents. Additionally, the residents of poorly designed multiple housing projects must cope with inferior living environments and the feeling that they are lower class citizens in a suburban neighbourhood dominated by conventional homeowners.

For the planning of residential areas, the tradeoff between economy and living conditions in housing has greatly changed the role of the density concept. Until very recently, the problem of land economy and availability has not been an important consideration in the application of density controls. While the literature has indicated that effectively designed housing at higher densities can offer desirable living conditions without any additional costs to developers, planners have little, if any, control over the design of multiple housing or the selling price dictated by developers. It is apparent, then, that the efforts by planners to set an appropriate level of density for multiple housing represents a compromise where a balance between economy(housing costs) and quality(living conditions) must be reached. Under ideal circumstances, densities should be set at a level where both economy and living conditions are maximized, but that ideal is probably unrealistic. The result, Keeble suggests, is that one element or the other is normally compromised:

> "Should one seek to discover the density which will afford the cheapest possible accommodations or, on the other hand, that will provide the best possible living conditions?"[34]

The process of balancing these two factors represents the most difficult problem in understanding and applying the density concept today. As is evident from the review of the literature there are no universal guidelines or evaluative critera that can be used to reach the most effective balance. This presents a basic question that is not answered in the planning literature: How do planners attempt to determine a density level that will ensure a desirable balance between economy and living conditions?

Although market demands will continue to lead to the planning and development of new residential areas, it can be concluded that the problems created by the tradeoff between economy and living conditons are more prevalent in partially developed suburban neighbourhoods where single family housing has been developed at an early stage. To date, the consequences of approving housing projects of a higher density than existing development seem not to have been fully realized. In order to fulfill the housing requirements of all residents in a partially developed suburban neighbourhood, planners must change their assumptions about residential design and density standards. Although the need for more multiple housing has been generally accepted by planners, the protests of single family homeowners suggest that the injection of higher densities into partially developed suburban neighbourhoods has created a great deal of hostility and distress. At this stage in the development and application of the density concept, there does not seem to be a solution to the problems created by a mixture of dwelling types or the inability to determine density controls that will achieve a desirable balance between economy and living conditions. As Sussna has concluded,

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[34] L. Keeble(1969), p.269

> "The relationship between people and the amount of land needed for their accommodation is a fundamental problem of land use planning. Competing needs exist. Striking balances to provide cheap housing accommodations while providing good living conditions requires complex work. More than development costs are involved. The appearance of residential areas and the costs of repairs and maintenence need to be taken into account. The blending of dwelling types and sizes to provide the highest occupancy rate consistent with comfortable living is a job that not only demands technical skill, it is one that is hampered by formidable forces throughout the nation."[35]

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[35] S. Sussna(1973), p.3&4

IV. CHAPTER FOUR

THE WEST JASPER PLACE STUDY AREA

A. SELECTION OF THE STUDY AREA AND SAMPLE NEIGHBOURHOODS

For the purposes of this thesis, the selection of West Jasper Place as the study area was based on the following criteria:

1. Planning history.
2. The nature or characteristics of the housing development.
3. Documented resident reaction towards the density of housing in the area.

From a planning perspective, the history of West Jasper Place dates back to 1967, when the territory was annexed by the City of Edmonton. To try to control future development and ensure that the land was used effectively, the West Jasper Place Outline Plan was developed by the Edmonton City Planning Department. It was approved by city council in 1969, and then amended in 1972, chiefly to revise the projected housing requirements for the area and to improve the design of such essential services as the educational and commercial facilities and the road network.[1] Subsequently, numerous plans at the neighbourhood and subdivision level were submitted and, in some cases, adopted by city planners for the West Jasper Place area, but these plans represent development proposals put forward on behalf of major land holders or developers. They therefore fall under the controls and guidelines established in the 1967 Plan and the 1972 Amendments.

As shown in Figure 1, West Jasper Place is one of six suburban districts known as outline plan areas. Like the others, it abuts on the city limits (as they existed before January 1, 1982) and has precisely defined boundaries:

> "The area lies south of the Jasper Freeway, West of 170 Street, East of the Outer Ring Road, and North of the river and Wedgewood Ravine. It includes the area south of 79 Avenue and east of 170 Street." [2]

In describing the physical attributes within the defined area, the 1967 Outline Plan emphasized the role of natural vegetation and other landscape features as critical elements of design. A review of the dominant physical features of the West Jasper Place area provides evidence that the planning and design of the housing and essential facilties was greatly influenced by the spatial characteristics of these features. In particular, much of the 1967 plan is devoted to the need to preserve the existing tree cover. Trees are regarded as an amenity which

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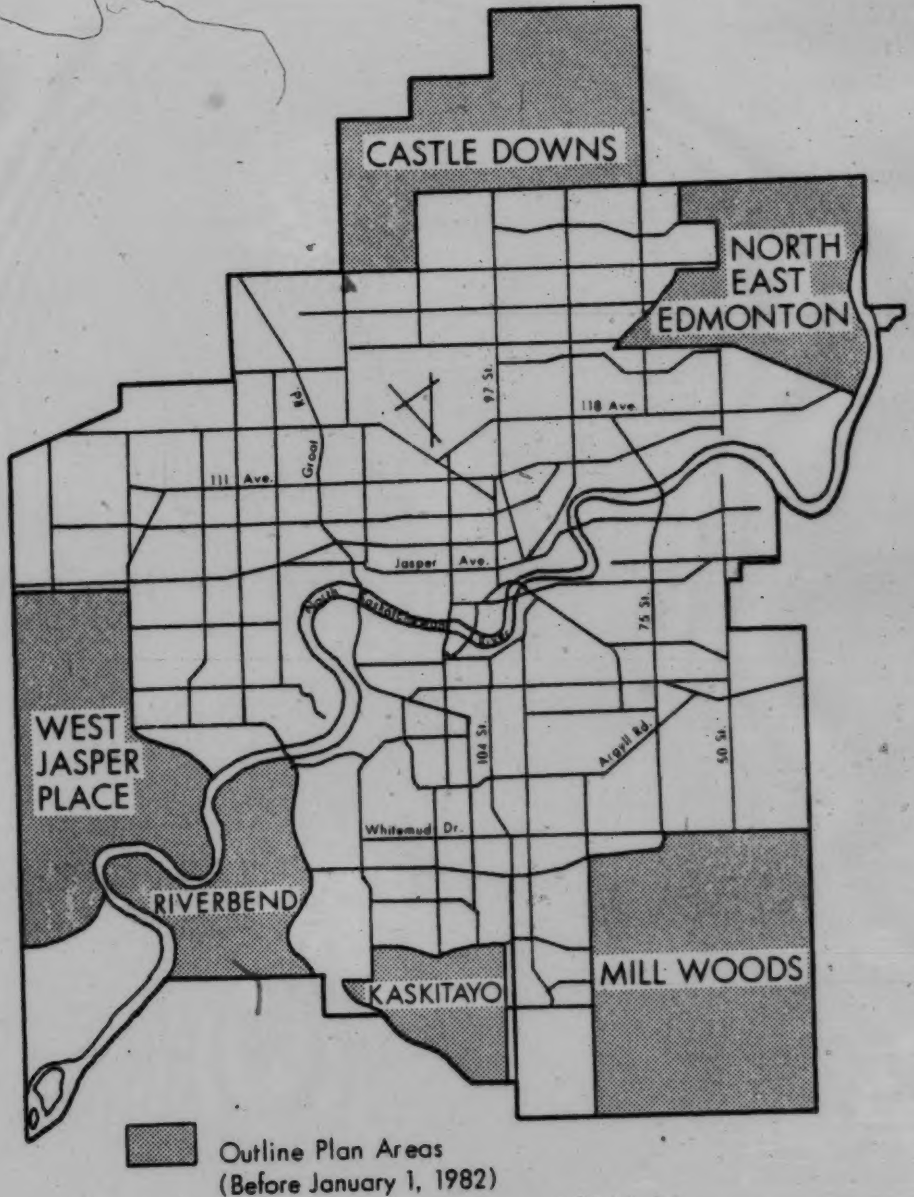
[1] City of Edmonton, *West Jasper Place Outline Plan Ammendments*, 1972, p.3

[2] West Jasper Place Outline Plan Amendments, 1972, p.6

FIGURE 1

EDMONTON OUTLINE PLAN AREAS


CASTLE DOWNS
NORTH EAST EDMONTON
97 St.
118 Ave.
Groat Rd.
111 Ave.
Jasper Ave.
North Saskatchewan River
75 St.
WEST JASPER PLACE
104 St.
Argyll Rd.
50 St.
Whitemud Dr.
RIVERBEND
KASKITAYO
MILL WOODS
▨ Outline Plan Areas
(Before January 1, 1982)

Source: Planning Department, City of Edmonton

should "strongly influence both roadway and walkway design, and the layout of buildings," since they add "quality and interest to a site." [3] Great value was also attached to the nearby river valley and ravines, both for recreational purposes and for the viewsites that could be designated for luxury high-rise apartments along the river bank. In addition, while tree cover and the river valley presented an opportunity to integrate elements of the natural landscape into proposed development schemes, soil types influenced the placement of housing types and neighbourhood layout. Specifically, to the north of 79 Avenue, west of 170 Street, a peat moss meadow and a "dumping area" were discounted for single family housing because of their high development costs. Since multi-storey buildings require deep foundations, however, their construction costs are not affected by such conditions. This has led to the obvious principle that "high rise buildings separated by generous landscaped areas should be located in zones where severe sub-soil problems exist."[4]

When compared with older residential areas in Edmonton, the outline plan areas present several special housing development characteristics. Between the inner city and the outline plan areas, the residential neighbourhoods consist primarily of single family housing built during the 1950's and early 1960's. Since the planning and design of outline plan areas began in the late 1960's and early 1970's, the complex changes in the housing market exerted their influence on the density standards and housing mixes recommended by planners. In general, the response was to propose a variety of housing types to accommodate different socioeconomic groups and a wide cross-section of households. This trend foreshadowed a dramatic change in the physical structure and design of residential areas.[5]

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[3] City of Edmonton, *West Jasper Place Outline Plan*, 1967, p.16

[4] West Jasper Place Outline Plan, 1967, p.18

As a study area, West Jasper Place offers many advantages for an investigation into resident reaction towards the density of housing. Unlike the homogeneous housing that is typical of earlier residential development, the West Jasper Place area provides a range of housing patterns, from primarily single family neighbourhoods to multiple housing neighbourhoods where detached houses are of minor importance. The majority of neighbourhoods, however, are of the mixed type, with higher density projects concentrated in particular sectors, separate from the detached houses. In West Jasper Place, the neighbourhoods with the strongest mixture of housing types tend to be grouped in close proximity to each other, mostly north of 79th Avenue (Whitemud Freeway). The least mixed neighbourhoods tend to be south of 79th Avenue and immediately adjacent to each other.

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[5] P.J. Smith, "Changing forms and patterns in the cities," in P.J. Smith (ed.), *The Prairie Provinces* (Toronto: University of Toronto Press, Studies in Canadian Geography, 1972), pp.109-11

The best example of a neighbourhood in which multiple housing is dominant is Callingwood (Figure 2), the neighbourhood in which it was originally intended to locate the West Jasper Place town centre. With the recent development approval of a 1200 unit rental project on that site, along with other projects including public housing, Callingwood will be the most densely populated suburban neighbourhood in Edmonton.[4] The contrast with the Westridge neighbourhood, immediately to the east, is particularly dramatic. As a "prestige" housing area, Westridge contains some of the most expensive homes in Edmonton, ranging in price from $185,000 to $800,000.[4] Two condominium projects have also been developed in the neighbourhood, with a price range of $185,000 to $250,000, but it is apparent that an attempt has been made by the developers to establish Westridge as a "luxury condo" market. The high quality housing is complemented by the natural physical setting of the neighbourhood, for the tree cover and ravines provide relief from the bare landscapes of West Jasper Place neighbourhoods north of 79th Avenue.

The proximity of two such different neighbourhoods as Callingwood and Westridge provides an ideal opportunity to identify resident reactions to density issues. Not only are there differences in the socioeconomic status of the two neighbourhoods, but each illustrates a different approach towards residential design and the application of the

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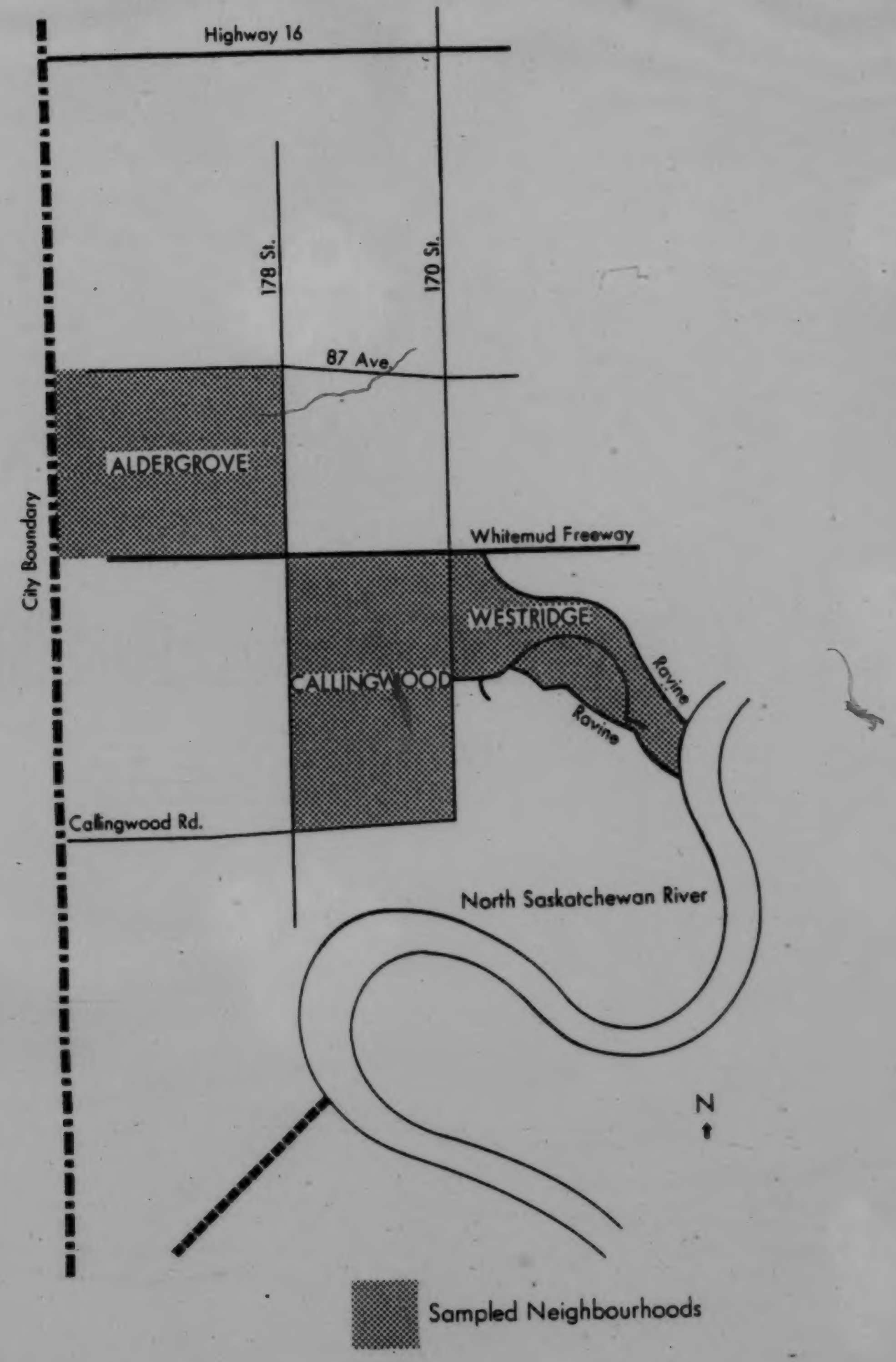
[4] *Edmonton Journal*, April 10, 1981

FIGURE 2

WEST JASPER PLACE STUDY AREA


Highway 16
178 St.
170 St.
87 Ave.
ALDERGROVE
City Boundary
Whitemud Freeway
WESTRIDGE
CALLINGWOOD
Ravine
Ravine
Callingwood Rd.
North Saskatchewan River
N
▨ Sampled Neighbourhoods

density concept. If, in addition, a neighbourhood where there is a mixture of housing types is included, the study will represent a complete cross section of housing development and neighbourhood design in West Jasper Place. As a result, it should be possible to determine reactions to the density applications that are most commonly used in suburban development by planners today.

The Aldergrove neighbourhood was selected to represent the mixed housing pattern. In addition to its proximity to Callingwood, which was expected to offer many conveniences during the distribution of the questionnaire, it was thought that the residents of three neighbourhoods as close together as Aldergrove, Callingwood and Westridge would share many facilities, such as transportation routes, parks, retail outlets and schools. As a result, direct comparisons of the responses from each neighbourhood could be made. The main reason why Aldergrove was selected however, is that it has been the seat of more aggressive homeowners' protests against high density developments than any other neighbourhood in West Jasper Place. These protests have received a great deal of publicity, which means that they are well documented in newspaper accounts. It was also anticipated that Aldergrove residents would be very interested in completing a questionnaire.

Although the nature of the housing development was the primary factor in the selection of West Jasper Place as the study area, the history of resident opposition had a number of favourable implications: West Jasper Place residents are well aware of the housing trends in their neighbourhood and the application of density controls; the protests against local housing projects have been based on density and density-related issues, such as neighbourhood population increases, the overburdening of public facilities and depreciation of land values; and, most significantly, the opposition against density has come from single family homeowners who are immediately affected by the approval of a higher density project. It is also interesting to note that these protests have not been limited to neighbourhoods where there is a mixture of housing types. They have come, as well, from resident groups in neighbourhoods where the development is clearly dominated by multiple housing (Callingwood) or single family housing (Westridge).

B. THE OUTLINE PLAN CONCEPT

Although the plan governing West Jasper Place has been defined as an "outline plan," there is a great deal of confusion surrounding the purpose of this type of control. Since 1967, three plans for the City of Edmonton have been published: the proposed general plan of 1967, a revised version which was adopted by bylaw in 1971, and the general municipal plan of 1980. Only the second addresses the concept of the outline plan explicitly. As defined there, an outline plan is:

> "A broad land use and transportation plan which establishes the distribution of major uses throughout an area, with the fundamental objective of providing a framework upon which detailed subdivision may be based."[7]

From this definition, it can be concluded that the intent of the outline plan is to act as an intermediate level in a hierarchy of plans - a level between the detailed plan of subdivision and the general plan for the whole city. Indeed, according to Gradin, the idea of providing a framework for land subdivision and the allocation of public services represents the central purpose of the outline plan:

> "Such a plan thus ensures that major uses such as schools, shopping centres, and arterial roadways are located in an orderly and economic manner, and in a manner consistent with the needs of the neighbourhoods, district, and city." [8]

Although the planning literature does not identify the outline planning concept under that name, it is a well-established idea. Its fullest expression in Canada is to be found in Carver's concept of "cities in the suburbs," which is built on the argument that there is a need for a level of spatial organization between the neighbourhood unit and the city at-large. The population commonly associated with the neighbourhood unit, in Carver's view, is just not large enough to support some vital social and commercial services. He therefore suggested that three or four neighbourhoods should be considered as a single unit, to generate sufficient population to support these services.[9] And from that, in turn, emerged the concept of the town centre as the central organizing principle in the design of "cities in the suburbs." Ideally located near the geographical centre of the planning area, the town centre is also seen as the focal point of the area, in a functional sense. In addition to a major shopping centre and social services (doctors, dentists, etc.), it would provide such necessary facilities as libraries, fire and police stations, places of entertainment and recreation, and so on.[10] Mid level educational services, such as high schools and community colleges, were also expected to occupy adjacent sites, as were those higher density forms of housing (such as high-rise apartments) that were not thought to be compatible with neighbourhood character. In sum, then, the town centre was to accommodate "all the essential features of suburban living which are extra-territorial to the neighbourhood.[11]

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[7] City of Edmonton, *General Plan*, 1971, p17.4

[8] R.R. Graden, *The Planning of New Residential Areas in Edmonton, 1950-1976*(Unpublished Master's thesis, University of Alberta, Department of Geography, Edmonton, 1979), p.74

The outline planning approach can therefore be said to have two purposes:

> "To provide a general framework into which specific development proposals could be fitted; and to create a community service unit larger and more realistic than the Perry neighbourhood."[12]

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[9] H. Carver, *Cities in the Suburbs* (Toronto:University of Toronto Press, 1962), p.60

[10] H. Carver(1962), p.64

[11] H. Carver(1962), p.60

[12] D.G. Harasym and P.J. Smith, "Planning for Retail Services in New Residential Areas since 1944" (*Calgary: Metropolitan Structure and Influence*, Ed. B.M. Barr, Victoria: University of Victoria, 1975), p.177

But while both these purposes seem to have been accepted in Edmonton, the 1971 general plan failed to present any criteria or guidelines for developing an outline plan. In Gradin's words:

> "The General Plan did not specify the relationship of an outline plan to other types of plans, nor did it specify its place in the planning process. Furthermore, the General Plan did not establish principles that could be specifically applied in the design of outline plan areas."[13]

Gradin might also have added that the general plan did not indicate exactly how the outline plan was intended to act as a control during the subsequent development of neighbourhoods and subdivisions. Its role at the implementation stage of the planning process has never been identified.

In addition to this general limitation, which affected all the outline plans prepared in the late sixties and early seventies, West Jasper Place suffered under the special handicap of being the first in the series. It was the prototype outline plan, the outgrowth of a strengthening belief, which the planners in Calgary shared, that there should be a more comprehensive basis for residential land use planning than was permitted by the neighbourhood unit concept. Unfortunately, neither planning theory nor planning practice at that time was able to offer clear direction about the technique of outline plan preparation. The Alberta planning legislation was of no help either; the concept of outline planning was not even recognized in law until the area structure plan was introduced in the Planning Act of 1977. It is not altogether surprising therefore, that it is difficult to know exactly how the West Jasper Place outline plan was expected to function as a control on the development process.

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[13] R.R. Graden(1979), p.73

C. LAND USE AND THE APPLICATION OF THE DENSITY CONCEPT

The approach to land use structure in the West Jasper Place outline plan was strongly influenced by Perry's neighbourhood unit concept, and the relationship between the neighbourhood pattern and the circulation system. The units are referred to, confusingly, as "quadrants," but, as in Perry's concept, each "quadrant" was to be capable of accommodating about 5,000 people, and land use is structured around a centrally located school, with a park and small commercial complex situated adjacent to the school. The placement of the neighbourhood "centre" directly determines the layout of housing, for it is recommended that the areas of medium residential density should surround the school, and "as distance from the school and park site increases, the density of the residential area decreases."[14] The underlying principle is that families in multiple housing are given the best access to community open space and to the designated transit routes (Figure 3). In its actual statements about housing mix and density, however, the plan

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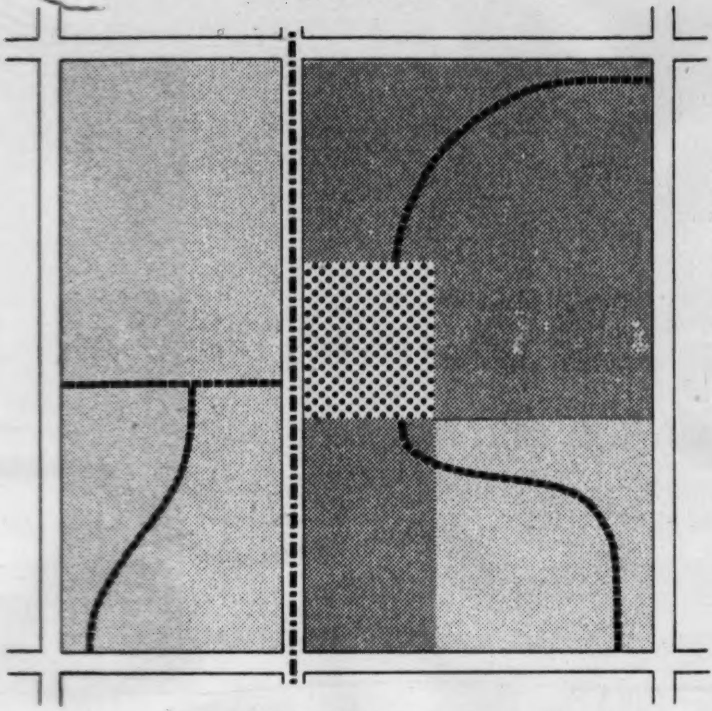
[14] West Jasper Place Outline Plan, 1967, p.41

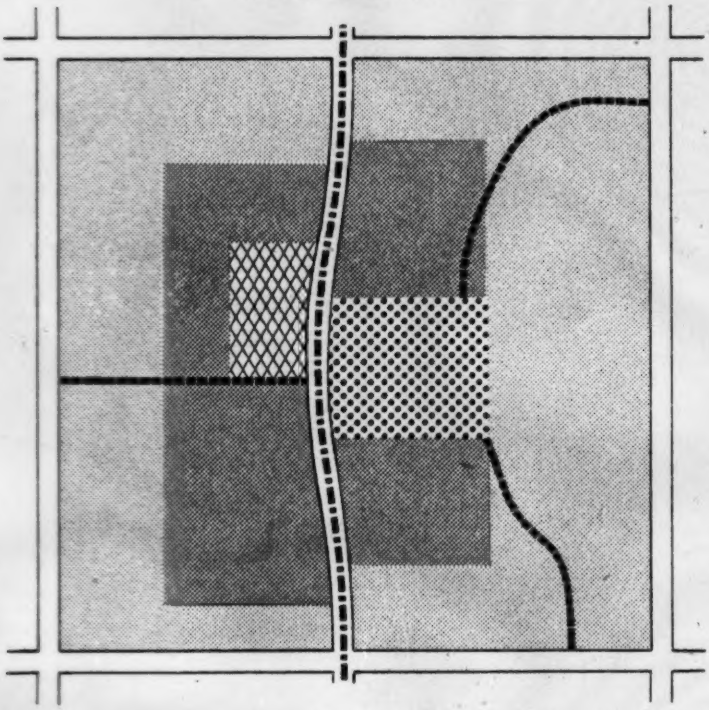
FIGURE 3

RECOMMENDED NEIGHBOURHOOD LAYOUTS

1967 OUTLINE PLAN



1972 AMENDMENTS


LEGEND
▩ Combined Park and School
░ R1 and R2 Residential
▓ R2A and R3 Residential
▨ Commercial
▬ Walkway
▪▬ Bus Route

Source: Planning Department, City of Edmonton

provides very limited guidance. While recognizing the need for "a wide range of housing types," including low cost multiple housing, apartments and a variety of detached housing types, a representative breakdown for each neighbourhood is not indicated in the plan.[15] As a result, it is uncertain how the placement and layout of housing in each sector was eventually to be determined. The objective of housing "in concentric rings of ever decreasing density" is a vague design guideline for developers and builders to follow. More detail is provided in an example of a subdivision design, but even there it is difficult to identify a consistent layout to be implemented throughout West Jasper Place. This limitation is most evident in the examples of housing group layouts, which concentrate on single family dwellings and neglect the relative placement of higher density dwelling types. How, then, did the planners determine the desired balance of housing types: did they forecast demand in the housing market, or base the housing mix on the objective of planning an area that would "result in a satisfactory relationship" with the residential development adjacent to West Jasper Place?

Further problems have followed from uncertainty about the application of a key concept of outline plan theory. As already noted, one of the major features of the outline plan concept is the provision for a comprehensive town centre, to serve as the focus of the entire planning area.[16] The proposed location of the West Jasper Place town centre was south of the 79th Avenue freeway and west of 170 Street, in what is now known as the Callingwood neighbourhood. The facilities that were envisioned for this site included a "campus" complex with a variety of schools for different age groups, a major sports centre, and a large commercial centre. Quite apart from the question of whether this kind of facility was needed in West Jasper Place, the plan is not clear about the housing mix proposed for the neighbourhood which contained the town centre and, consequently, for the entire planning area. The plan simply recommends that the "residential areas surrounding these major facilities should be of higher density than those surrounding the school and commercial sites in the other quadrants of the scheme area." [17] From this wording, however, it is not certain if the planners intended the higher densities to be restricted to the area immediately adjoining the town centre, or if the whole of the town centre "quadrant" was to be given over to apartments, or if several "quadrants" around the town centre were to be developed in this way. Nor was there any attempt to define "higher density" or to set a measurable standard.

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[15] West Jasper Place Outline Plan, 1967, p.62

The purpose of this illustration is to draw attention to the confusion that surrounds the proposed housing mix for West Jasper Place and the application of the density concept. In reviewing the outline plan, it is evident that the planners were thinking in terms of neighbourhoods that were similar in size and structure. From the description in the plan, it could be concluded that the neighbourhoods were to follow a consistent pattern, with similar layouts and housing mixes. But the town centre required special treatment, and its implications for residential design are not spelled out.

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[16] R.R. Graden(1979), p.93

[17] *West Jasper Place Outline Plan*, 1967, p.46

The specific treatment of density in the original plan of 1967 does nothing to clarify this situation. A standard of 19 persons per gross acre of developable land was used to calculate a target population for West Jasper Place (69,000), and from that, in turn, community service needs should have been determined. Yet, this was too crude a basis for making large investment decisions, a deficiency that was compounded by the plan's failure to justify the choice of density standard or to evaluate its appropriateness. It appears (although even this is unclear) that 19 persons per acre was the average density of existing nearby suburbs, but the plan neither explores the implications for the actual development pattern there nor addresses the relevance of the standard to the proposed development of West Jasper Place.

For the purposes of this thesis, the amended plan of 1972 has greater implications for the density concept than the 1967 outline plan. Three critical elements of residential planning were dealt with afresh: specifying the composition of housing types for each neighbourhood in West

Jasper Place; providing more detailed population estimates and density standards for each neighbourhood; and outlining a neighbourhood scheme and specific planning boundaries for each neighbourhood to replace the original "quadrant" concept. Above all, it was said,

> "a general trend towards higher density residential development as a means of providing more variety and economy in housing required that the plan be reviewed and brought up to the current density levels being applied in all other outline plan areas in the city."''

By that time, detailed subdivision plans for five neighbourhoods had been approved, and were expected to generate gross densities well above 19 persons per acre. In the words of the amended plan (p.1 of Part 4), "considerable difficulty was experienced in keeping densities to an acceptable range."

Section 4 of the amended plan deals with the question of density standards and population distribution, and the "planning requirements" to which they gave rise. The whole treatment is considerably more detailed than in the original outline plan, but its bases are left as obscure as ever. The nearest approach to an explanation is as follows:

> "In developing the Density Distribution Plan, the Planning Department reviewed development patterns emerging elsewhere in the City and the capacity of the Outline Plan area in terms of the population that could be accommodated by the circulation systems, the school and park distribution plan and the utility networks."''

Unhappily, the second half of that sentence is misleading,

''Outline Plan Amendments, 1972, p.3
''Outline Plan Amendments, 1972, p.18

since it implies that the density standards were fixed by the population capacity of the outline plan area rather than the reverse. Density standards have no meaning as a planning tool if they are not used to convert measurements of land area into estimates of population size and community service needs. In the amended plan for West Jasper Place, however, the real density standards are concealed.

To understand the procedure that was followed, it is necessary to turn to a little-known technical appendix, in which the detailed calculations of population and community service needs are set out, neighbourhood by neighbourhood, That meant, as a first step, that a basic neighbourhood scheme had to be agreed upon. As presented in Figure 4, it comprised 13 neighbourhoods (essentially unchanged from the "quadrants" of the original oultine plan), the size and shape of which were dictated largely by the desire to impose a hierarchical street system on the area. The neighbourhood boundaries were set by the pattern of major and minor arterials. From that, it was possible to make the first critical measurement - the total gross developable area for each neighbourhood (Tables 5, 6, and 7). Next, it seems assumptions were made about the land use structure of each neighbourhood, but the logic that was used here can only be deduced. The initial step appears to have been the calculation of a net residential area, which was presumably the area left after the community service needs had been accommodated. That suggests, in turn, that the service land

FIGURE 4

NEIGHBOURHOOD SCHEME

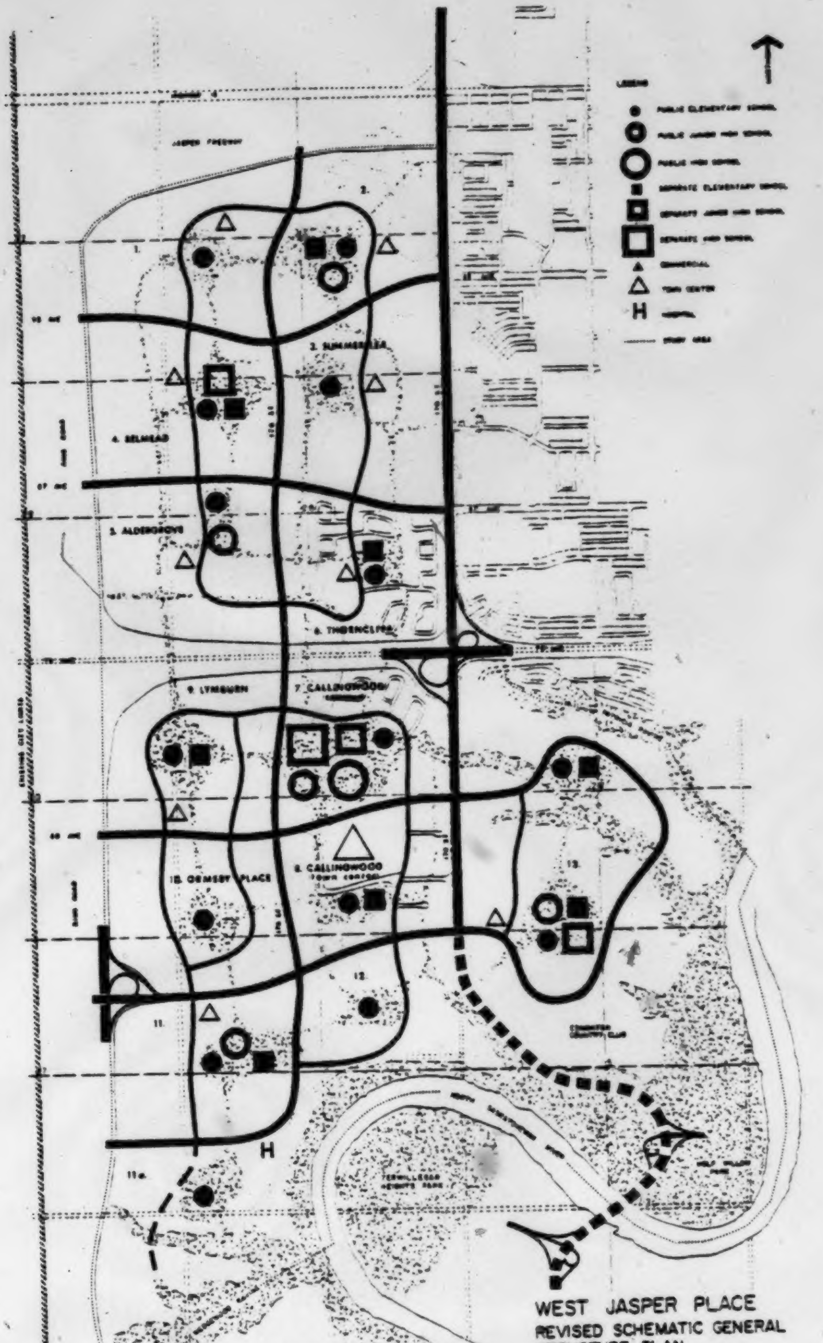
LEGEND
PUBLIC ELEMENTARY SCHOOL
PUBLIC JUNIOR HIGH SCHOOL
PUBLIC HIGH SCHOOL
SEPARATE ELEMENTARY SCHOOL
SEPARATE JUNIOR HIGH SCHOOL
SEPARATE HIGH SCHOOL
COMMERCIAL
TOWN CENTER
H HOSPITAL
STUDY AREA
JASPER FREEWAY
1.
2.
3. SUMMERLEA
4. BELMEAD
5. ALDERGROVE
6. THORNCLIFF
7. CALLINGWOOD
8. CALLINGWOOD TOWN CENTRE
9. LYMBURN
10. ORMSBY PLACE
11.
11a.
12.
13.
H
WEST JASPER PLACE
REVISED SCHEMATIC GENERAL STRUCTURE PLAN
THE CITY OF EDMONTON PLANNING DEPARTMENT

TABLE 5

DENSITY CALCULATION
NEIGHBOURHOOD NO. 5
(ALDERGROVE)

I **General**

Total Gross Developable Area	Total Net Residential Area
237 Ac.	145 Ac.

II **Zoning Composition**

Zoning Category	Area	% Net Residential Area	Number Dwelling Units	Number People
R-1	107	74	642	2,664
R-2A	19	13	323	1,324
R-3	19	13	475	1,302
Total	145	100%	1,440	5,290

III **Other Use**

Schools and Parks	21.9 Acs.
Commercial	3.5 Acs.
Proposed Circulation	66.6 Acs.
Total	92.0 Acs.

IV **Overall Population**

Total Population	Density Per Gross Acre	Density Per Net Residential Acre
5,290	22.32	36.48

Source: City of Edmonton Planning Department. West Jasper Place Outline Plan Amendments. 1972.

TABLE 6

DENSITY CAGLULATION
NEIGHBOURHOOD NO. 7
(CALLINGWOOD NORTH)

I **General**

Total Gross Developable Area	Total Net Residential Area
190 Ac.	59.6 Ac.

II **Zoning Composition**

Zoning Category	Area	% Net Residential Area	Number Dwelling Units	Number People
R-1	17	28.5	102	423
R-2	2	3.4	24	98
R-2A	29.9	50.2	508	2,083
R-3	6	10.0	150	411
R-3A	4.7	7.9	272	704
Total	59.6	100%	1,056	3,719

III **Other Uses**

Schools and Parks	96.3
Proposed Circulation	30.5
Ravine	3.6
Total	130.4

IV **Overall Population and Density**

Total Population	Density Per Gross Acre	Density Per Net Residential Acre
3,719	19.5	62.4

Source: City of Edmonton Planning Department.
West Jasper Place Outline Plan Amendments.
1972.

TABLE 7

DENSITY CALCULATION
NEIGHBOURHOOD NO. 13
(WESTRIDGE)

I **General**

Total Gross Developable Area	Total Net Residential Area
472 Ac.	266 Ac.

II **Zoning Composition**

Zoning Category	Area	% Net Residential Area	Number Dwelling Units	Number People
R-1	194,2	73	1,165	4,835
R-2	5.3	2	64	262
R-2A	42.6	16	724	2,968
R-3	23.9	9	598	1,639
Total	266.0	100%	2,551	9,704

III **Other Uses**

Schools and Parks	62.0 Acs.
Churches	4.0 Acs.
Commercial	6.0 Acs.
Proposed Circulation	134.3 Acs.
Total	206.3 Acs. - 206 Acs.

IV **Overall Population and Density**

Total Population	Density Per Gross Acre	Density Per Net Residential Acre
9,704	20.56	30.48

Source: City of Edmonton Planning Department. West Jasper Place Outline Plan Amendments. 1972.

needs were not derived from the anticipated population but from some preconceived view of "desirable" servicing standards (e.g. one public elementary school on a site of X acres per neighbourhood, regardless of the characteristics of the neighbourhood population). The second step was to break the net residential area down by zoning categories, and this resulted in extraordinarily precise calculations of the amounts of land in each zone. Regrettably, there is no explanation of the means by which the different zoning combinations were determined, and no indication of how it was possible to arrive at such precise measurements at the outline planning stage.

It is at this point in the procedure that density standards were introduced, though their role is not acknowledged. To calculate numbers of dwelling units from a measurement of area, however, it is necessary to have a conversion ratio. In the case of R-1 zoning, for example, it proves to have been 6 dwelling units per acre, a density that assumes a standard lot size of about 60 feet by 120 feet, which was Edmonton's norm in the 1960's. Then, a second ratio had to be introduced, to convert the estimate of dwelling units into a population estimate. This could have taken the form of an occupancy ratio, presumably based, in its turn, on assumptions about the average sizes of the families and households most likely to be associated with the different housing types represented by the zoning categories. In the case of R-1 zoning, again, the standard proves to have been 4.15 persons per dwelling.

Quite apart from any question about the validity of the various standards that were employed in these calculations, it is far from clear where the whole exercise was leading. The statistical result, which was included in the amended outline plan, is summarized in Table 8. But what were the planning implications? In reflection of the increase in average gross density from 19.0 to 23.4 persons per acre, the population capacity of West Jasper Place was raised from 69,000 to 76,800, but that does not seem to have been accompanied by a systematic reappraisal of community service needs. The only obvious change between the plans of 1967 and 1972 is an increase in the number of separate elementary and junior high schools (from 6 to 11.) The proposals for public schools, on the other hand, are identical in the two plans, and other elements of the service system do not appear to have been adjusted either. Yet the population total of 76,800 is referred to as a "ceiling population," which obviously implies that anything larger would cause the service facilities of West Jasper Place to be over loaded. The plan, itself, provides no evidence in support of such a concern. The real relationship between population and service needs had not been investigated with sufficient rigour to know whether the plan's allocation of service facilties was adequate or inadequate, generous or skimped.

One particular use that was made of the detailed population data was to forecast the school age population

TABLE 8

POPULAION DENSITY AND DISTRIBUTION BY NEIGHBOURHOOD

Neighbourhood	Gross	Population	Density
1	217	4,887	22.5 p/g.a.
2	190	5,058	26.6 "
3	260	6,363	24.5 "
4	236	5,077	21.5 "
5	237	5,290	22.3 "
6	194	4,955	25.5 "
7	190	3,719	19.5 "
8	189	8,611	45.5 "
9	219	4,671	21.3 "
10	212	4,745	22.4 "
11	231	4,631	20.0 "
11a	242	4,745	19.6 "
12	190	4,352	23.1 "
13	472	9.704	20.5 "
	3,279	76,808	23.4 p/g.a.

Source: City of Edmonton Planning Department. West Jasper Place Outline Plan Amendments. 1972.

for each neighbourhood, and to distribute the children by school type (elementary, junior high and senior high) and system (public and private). Once again, however, the purpose of the exercise was obscure. Not only did it come too late for land use planning purposes, because the school pattern had already been determined and land needs had been fixed, but it generated the sort of information that was more likely to be used at the stage of designing school buildings.

Finally, and most confusingly, for the purposes of this thesis, the data on gross and net land area and population capacity were used to calculate mean population densities for each neighbourhood. Indeed, it was only at this step in the analysis that the term "density" was used at all, which suggests a complete misunderstanding of the concept of density as a planning tool. Rather than being recognized as the most critical variable in the land use allocation process which is the central task of an outline plan, density (in the form of the "density distribution plan") was presented as the end product of the statistical procedures. So what planning purpose were the mean neighbourhood densities meant to serve? Did they simply provide a summary description of the variety of neighbourhood development patterns that was accepted under the plan, or were they viewed as planning standards in their own right, representing either optimum or maximum development conditions? And if they were thought of as planning standards, what sort of control system would have been required to make them workable? The amended outline plan is silent on all these questions.

The best that can be said of the 1972 plan, in respect to the density issue, is that it acknowledged the growing pressure for more intensive use of suburban land. When it came down to translating that awareness into a development strategy or policy, however, there was no real demonstration that the implications of an increased density were understood, let alone measured. The results of the elaborate calculations that are summarized in Table 8 can only be dismissed as spurious. In their actual use of density standards, they reflect assumptions about future development conditions that are never even explained, let alone put to any test. They therefore convey a completely false impression of precise foreknowledge, and appear to hint at a degree of control (if the mean neighbourhood densities are taken as maximum development standards) that events soon proved to be unwarranted.

In theory, an outline plan should establish a general physical framework and a set of planning principles against which the detailed proposals of public and private development agencies can be evaluated. In some respects, the West Jasper Place outline plan has indeed provided this sort of control. The hierarchy of major and minor thoroughfares, for example, has been implemented in close accord with the plan, and has imposed a strong spatial order on the whole study area. Meanwhile, in other vital respects the plan's directives have been ignored or overridden. The most extreme case, and the most controversial, was the decision to grant development permission for the construction of a large regional shopping centre in Summerlea neighbourhood - a decision that destroyed the town centre concept for West Jasper Place and removed the original justification for a high density of residential development in the Callingwood neighbourhood. The ramifications of that particular decision are still being felt, but it also points, more generally, to the slight role that the outline plan has had in the actual development decisions. In particular, there is no evidence that the notion of a "ceiling" on population or population density has had any influence on the design and approval of subdivisions in West Jasper Place.

D. RECENT DENSITY-RELATED CONFLICTS

Although it has been suggested that resident opposition against density in West Jasper Place dates back to the early 1970's, the majority of the protests have occurred since 1977. The primary source of documentation for these protests is the *Edmonton Journal*, and the weekly column in the "Neighbourhood Journal" dealing with West Jasper Place. While many of the articles have focused on density and related concerns throughout the study area (e.g.May 20, 1978; September 11, 1978; and October 16, 1978), protests from single family homeowners in the Aldergrove and

Callingwood neighbourhoods have received the most attention from the news media. And the goal in both neighbourhoods has been the same: to limit the local development of higher density housing. The arguments put foward to support this goal are well known, for they are commonly associated with density-related protests: high densities of multiple housing will lower the value of nearby single family dwellings; traffic will increase; existing public facilities will not be able to accommodate an increase in neighbourhood population; and the density of housing in the neighbourhood is already too high.

For single family homeowners in Callingwood, recent density protests have focused on what is now known as West Edmonton Village, a rental housing project of 1200 units on the site originally proposed for the West Jasper Place town centre. [20] The resident opposition dates back to late 1978, when developers applied to have the site rezoned to permit apartments to be built. [21] At that time, the Edmonton Municipal Planning Commission found the proposed density "unacceptable," and the residents distributed petitions and voiced their concern about the lack of public facilities and the implications of a population increase. Yet, the rezoning application was approved by Edmonton City Council, with the proviso that the City Planning Department would regulate the type and mix of housing for the project. [22] Under the rezoning bylaw, however, the developers were given the right to build 1200 units on a 46 acre site, for a density of 26 units per acre. The agreement between the developer and city council also called for a committee of residents to contribute to the project design, but the people of Callingwood later concluded that their "participation was virtually useless."[23]

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[20] *Edmonton Journal*, April 10,1981
[21] *Edmonton Journal*, December 13&18,1978

In Aldergrove, the resident protests began in July 1978, when members of the Aldergrove Community League recommended to city council that a development freeze should be imposed, due to the shortage of public facilities in the neighbourhood.[24] They expressed concern that the provision of education, recreation, and transportation facilities was not keeping pace with the increase in Aldergrove's population density. Subsequent protests were directed towards a vacant strip of land between the west boundary of the neighbourhood and the outer ring road, the alignment of which had recently been shifted westward. Developers were quick to propose that high density multiple housing be constructed.[25] This was countered by the residents who obtained 700 signatures on a petition and were able to persuade Edmonton City Council to adopt a new area structure plan bylaw. This limited the development of the Aldergrove extension to single family dwellings.[26]

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[22] IBID, January 24,1979
[23] IBID, June 4,1979
[24] IBID, July 17&24,1978
[25] IBID, October 30, 1978

The most recent protest in Aldergrove has been concerned with the possible construction of smaller houses on this site. Following the area structure plan, a plan of subdivision for the whole Aldergrove extension was approved by the Municipal Planning Commission in January 1980 (Figure 5). The decision was appealed to the Alberta Planning Board, chiefly on the grounds that there would be a dangerous increase in traffic through the original area of Aldergrove, but this appeal was dismissed. [27] The subdivision was then zoned R-1, single family residential, under Bylaw 5991, and the way seemed clear for development. Almost immediately, however, the City of Edmonton passed its new Land Use Bylaw, as required by the Alberta Planning Act, 1977, and the zoning category changed to RF1. That was also accompanied by various new regulations, including, most significantly, a substantially smaller minimum lot size. The developers, who had not yet sold any of their lots, saw this as an opportunity to reduce the average lot size and so lower the selling price of the houses that would eventually be built. A new plan of subdivision was therefore prepared, to increase the total number of lots from 416 to 489, and this plan was apprroved by the Municipal Planning Commission in October 1980. Unfortunately for the developers, the revised plan also included a pocket of still smaller lots on which

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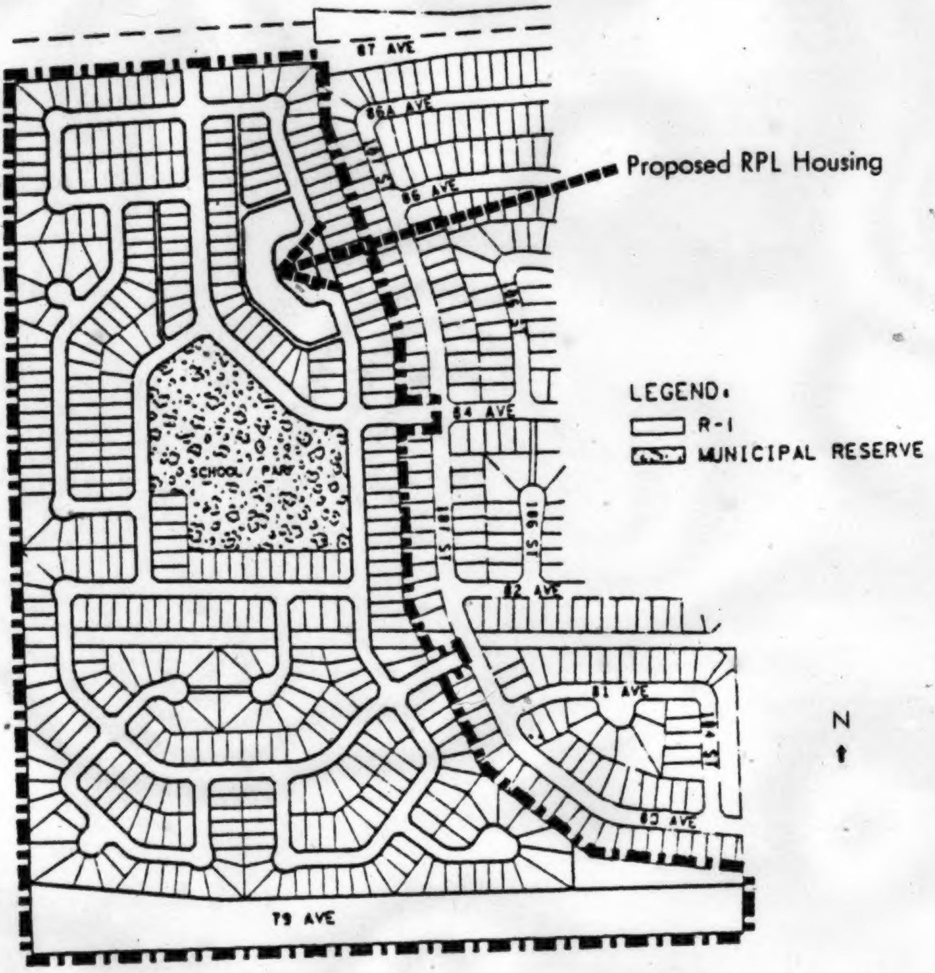
[26] IBID, June 4,1979

[27] Letter to J. Stepnisky from S.C. Rodgers, February 23, 1981.

FIGURE 5

ALDERGROVE EXTENSION APPROVED SUBDIVISION


Proposed RPL Housing
87 AVE
86A AVE
86 AVE
84 AVE
SCHOOL / PARK
107 ST
106 ST
82 AVE
81 AVE
104 ST
80 AVE
79 AVE
LEGEND:
R-1
MUNICIPAL RESERVE
N

Source: Planning Department, City of Edmonton

it was proposed to build zero lot line houses. For that however, a rezoning or redistricting (the new terminology of the Land Use Bylaw) was required from RF1 to RPL. Once again, a protest erupted. A petition with 100 signatures was presented to city council and the support of a local alderman was obtained.

The bases of the protest were set out in a letter from Mr. Bruce Mintz, a property owner on 187 Street, and the spokesman for the residents immediately to the east of the new subdivision:

1. The introduction of smaller lot sizes, particularly for zero lot line development, would decrease the value of nearby properties.
2. Smaller lot sizes would be inconsistent with existing development in Aldergrove. The first subdivision plan had been designed for the old R-1 zoning, with its more stringent restrictions on minimum lot size.
3. Traffic congestion would increase along residential streets in the area immediately east of the subdivision. Because no direct access was provided to 79 Avenue, the residential streets in Aldergrove would have to serve as feeder roads for residents in the new subdivision. [28]

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[28] Letter to Edmonton City Council from B. Mintz, February 4, 1981.

Running through these items of concern there seems to be an unexpressed feeling that it was unfair to change the development control rules in midstream. If the Aldergrove neighbourhood had to be extended beyond its original boundaries, the new development should be in keeping with the old. The issue, then, was not a small number of zero lot line houses but the whole resubdivision plan. On that issue, however, there was no legal ground for an appeal. The revised subdivision plan had been processed in the prescribed manner and, with the exception of the block proposed for zero lot line houses, it satisfied the requirements of an RF1 district. The larger issue therefore had no legal standing in the specific rezoning case, but it explains the force of the residents' reaction to something that would otherwise have seemed quite minor.

In its evaluation of the rezoning application, and in direct response to the concerns of Aldergrove homeowners, the City Planning Department presented their recommendations to City Council in January and February 1981. The Planning Department approved of the rezoning application because the increase in density was in "keeping with the policies of the General Municipal Plan which recommends increased densities in the Area Structure Plan areas."[21] They also saw the proposed RPL housing as consistent with the built up area of Aldergrove because it was detached housing, and the "subject subdivision will simply provide further variety in size and affordabilty of single family dwellings in the area."[30] Most importantly, the Planning Department felt that the small size of the area affected by the zoning change should eliminate any concern about undesirable effects. The RPL zoning would permit an increase of only eleven houses over the maximum number that could be built under RF1 zoning. This represents an increase in density from 13.26 to 15.58 people per gross acre for the area affected by the zoning change. The Planning Department also concluded that the nearby properties in Aldergrove would not be devalued by the proposed RPL housing, since they would be separated by a strip of RF1 zoning and lots comparable to those already developed in Aldergrove.

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[21] Summary of Recommendations for Bylaw 6243, City of Edmonton Planning Department, February 3, 1981.

In an interview on March 25, 1981, Mr. Mintz felt that a primary concern of residents who opposed this proposal was the role of the City Planning Department in the rezoning application process. As part of the agreement for the subdivision of the Aldergrove extension, a citizens' committee was formed to provide a local contribution to the initial layout design in 1980. Yet, neither the Planning Department nor the developer notified these same residents of the subdivision and rezoning applications and the resulting increase in density.[31] The Alberta Planning Act does not require any notification in the case of subdivision applications, and only "adjacent landowners" need to be notified of a rezoning application. Since the proposed zero lot line housing was on a block of land in the interior of the subdivision, the developer was the only adjacent landowner, and he did not have to inform anyone in Aldergrove about his plans. Although this procedure is legal, Mr. Mintz was concerned that such technicalities give single family homeowners the feeling of being misled by planners and developers. It is admitted that the application for rezoning was advertised in the Edmonton Journal, as required by the Alberta Planning Act, but this is an ineffective way of making the general public aware that some change is imminent. In the normal course of events, the advertisements are simply overlooked.

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[30] Summary of Recommendations for Bylaw 6243, City of Edmonton Planning Department, January 6, 1981.

[31] Letter to Edmonton City Council from B. Mintz, February 4, 1981.

In the upshot, the application for rezoning to RPL was rejected by Edmonton City Council in February 1981.[32] Although all the factors influencing the decision are not known, publicity of the opposition and the submission of a 100 signature petition ensured that the residents' concerns received a high profile. Since this decision was passed, housing construction has not occurred in the subdivision.

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[32] Edmonton Journal, February 23, 1981

V. CHAPTER FIVE

SURVEY METHODS

A. RESEARCH DESIGN

As indicated in Chapter 3, few if any studies related to the density concept have dealt with the reaction of single-family residents towards residential densities in suburban areas. Rather, the density research has focused on the living conditions of multiple housing occupants, and the pathological and social disorders associated with high densities. An original method of determining density reactions had therefore to be designed for this thesis. This implied that means of gathering data, sampling and data interpretation should be incorporated into the research design. However, as Oppenheim maintains, before the research methods can be developed, the aims of the research and the variables that should be measured must be clearly identified.[1] To determine the aims and subsequent design of the research, two questions must be asked: What are we trying to find out, and what are we going to do with the data?

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[1] A.N. Oppenheim, *Questionnaire Design and Attitude Measurement*, (London: Heinemann Educational Books Ltd., 1966), pp.1-3

Although the primary objective of the thesis research is to identify the reaction of single-family residents towards densities in West Jasper Place, it is first necessary to identify the many density-related issues which determine the reactions of single family residents. It is unrealisitic to conclude that density reactions can be identified by merely asking residents, "What is your reaction to densities in West Jasper Place?" This approach fails to explain what variables contributed to the reaction and how the outlook towards residential densities developed. To suggest recommendations for planning applications of the density concept, the research had to be designed from the perspective of satisfying different information needs related to density and the characteristics of single family residents living in West Jasper Place. From the review of protests in the area, it is evident that residents have voiced concerns about present densities of development, about the anticipated density after the completion of multiple housing projects, about the availablity of public services and facilities, and about the location of future high density development in Edmonton. The research design should therefore incorporate all these topics.

In addition, to generate recommendations for planning applications of the density concept, the research design must address the problems associated with the housing market and residential design as presented in Chapter 3. The need for a tradeoff between housing economy and living conditions represents a dramatic change in residential design and future applications of the density concept. Escalating land and housing construction costs will force planners to re-evaluate the layout of residential areas and allow for greater variety in housing types, with less expensive, higher density housing proportionally increasing in demand. The likelihood of higher suburban densities in the future has important implications for the research design and data requirements, because of the inference that resident reactions will intensify. It is therefore crucial to evaluate the characteristics of the densities and housing types in West Jasper Place, in order to determine how planners can provide for the development of high density housing while minimizing the negative consequences that single family housing residents associate with high densities.

Because of the paucity of studies addressing the tradeoff between housing economy and living conditions, it is apparent, for the purposes of the thesis, that several residential design-related assumptions must be incorporated into the research and the data requirements. For example, at this point, there has been no attempt to determine if the distance between multiple housing projects and single family residences influences density reactions, or if the design (profile, layout, etc.) and location/placement of multiple housing in the neighbourhood is a factor. Furthermore, it has not been determined if there is a correlation between density reactions and housing types. Are the density-related reactions of single family residents dependent on the types of housing found in their neighbourhood? From a review of the literature, it is apparent that it has yet to be determined if single family residents prefer one high density housing type over another. Furthermore, it has not been determined if density reactions vary between rental and self-owned housing. Problems of transiency and lack of community interest have been commonly associated with residents who live in rental housing. Are single family residents disturbed by higher densities per se or by the social connotations of rental occupancy?

For the purposes of residential planning and design recommendations, it is also necessary to evaluate the effect of the physical environment to see how the proportionate representation of different housing types and the overall density of a neighborhood influence the reactions of single-family residents. The research design should therefore include an evaluation of different neighbourhoods. By selecting neighbourhoods of varying overall density and housing type, it will be possible to compare data and determine how the physical environs influence reactions. The most significant purpose of the environmental comparison, however, is to find out how single-family residents react to densities in neighbourhoods where single family housing is dominant as opposed to a neighbourhood of primarily multiple housing. This, in turn, should provide some insights into the desirable balance of housing types in contending with the density tradeoff problem.

In conclusion, it is worth repeating that the lack of prior studies in this area of planning has greatly affected the reseach design of this thesis. The questions and problems raised here reflect possible inflences on the density reactions of residents, and the density tradeoff, but, at this stage, it is impossible to know for sure. Thus, to try to ensure that all the influential factors are identified, the research must be exploratory in design, and it must be assumed that all the density-related problems and factors presented here are likely to affect resident reactions and the density tradeoff. All must be accommodated, somehow, in the survey methods.

B. QUESTIONNAIRE DESIGN

The research literature was reviewed in an effort to determine which survey technique would be most effective for collecting data relevant to the objectives of the study. While field research, personal observation and other related methods are discussed, the literature focuses on two widely used survey techniques: personal interviews and self-administered questionnaires. It was decided that one of these two techniques would be appropriate for the density survey, since many of the information needs could not be fulfilled through observation methods.

The merits of the interview technique are well known: its flexible approach enables the interviewer to make sure that the respondent understands the questions and the purpose of the survey; a rapport can be established with the respondent so that information and a high degree participation can be maintained; and, most significantly, interview surveys offer a high response rate, since prospective participants are more likely to cooperate when approached in person.[2] As Burton and Cherry conclude however, there are problems with interview techniques, and these stem from many of the advantages just identified. In general, the interview situation presents problems related to bias. Interviewers are often guilty of "over rapport," where the success of establishing a close relationship leads to an unconscious influence on the participant's answers.[3] Futhermore, for research entailing a large study population, the interviewing process for an effective sample size would simply take too long.

The chief merit of the mail survey or self administered techniques is that it is possible to cover a larger area and reach a larger sample of the population.[4] Additionally, a mail questionnaire is cheaper to administer, since less time is required to obtain results, train interviewers and travel between participants. Burton and Cherry also argue that

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[2] T.L. Burton and G.E. Cherry, *Social Research Techniques for Planners* (London: George Allen and Unwin Ltd., 1970), pp.41-42

[3] T.L. Burton and G.E. Cherry(1970), p.42

[4] T.L. Burton and G.E. Cherry(1970), p.38

> "the respondent will answer a selfadministered questionnaire more frankly than he would an interview, since anonymity is not only assured but is seen to be assured. Again, it is claimed that the questions in a selfadministered survey are totally standardized, and therefore, responses are totally comparable."[5]

The chief drawback to mail surveys is their low response rate, typically below 50 per cent. This can be attributed to the lack of interest and involvement commonly associated with mail questionnaires. Those who receive a questionnaire often conclude that they do not have any obligation to complete it; the time required to fill it out is too long and the idea of participating seems like too much trouble. Another problem is the threat of bias, since those who choose to participate may not be representative of the population and "the sample may be distorted significantly by the degree of nonresponse."[6] In general, mail questionnaires represent a tradeoff: a larger sample of the population can be polled, but in order to get a desirable return, a much higher proportion of the total population must be sampled.

Its disadvantages to the contrary, the mail questionnaire technique was adopted for this thesis. In addition to the prospect of obtaining a representative sample of the large population in West Jasper Place, it was thought that a selfadministered questionnaire would be more effective in contending with a special problem. This can be best described as "density bias," or the negative associations that are conjured up by the word *density*. From the protests of single family residents in West Jasper Place, it can be concluded that density and its related social and amenity problems are highly emotional issues. Since, following Berdie and Anderson, a survey should avoid words with possible emotional overtones,[7] the word *density* must not be used in the West Jasper Place survey, and the respondents should not be led to interpret the questions as part of a density survey. In evaluating the two survey approaches here, it seemed that, because of the problems related to over-rapport, lack of consistency, and the phrasing of questions, the threat of "density bias" would be greater under the interview technique. An interview situation would also provide the participant with a greater opportunity to probe the interviewer about the purpose of the survey. This could lead to tense situations, where a respondent would question his/her participation in the survey. Furthermore, to achieve a "good" answer, the interviewer could be tempted to drop "hints" about density-related issues and the purpose of asking specific questions. It was therefore anticipated that the ability to camouflage the intent of the survey by using a self-administered questionnaire would reduce bias and result in a higher acceptance rate by prospective participants.

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[5] IBID

[6] IBID, p.39

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[7] D.R. Berdie and J.F. Anderson, *Questionnaires: Design and Use* (Metuchen, N.J.:The Scarecrow Press, Inc., 1974), pp.41-45

Apart from the elimination of "density bias," the most difficult task in preparing the questionnaire was to incorporate all the data requirements to fulfill the objectives of the thesis research. The problem in approaching the design of the questionnaire was to ensure that the respondents had an opportunity to identify their reactions to the densities in West Jasper Place, the reasons why they have developed such reactions, and the variables that contribute to the reactions. Additionally, to assist in the recommendations for the "density balance," the questionnaire had also to poll the respondents for their suggested solutions to the problems of the housing tradeoff and other density-related concerns.

The guidelines presented in Burton and Cherry, Berdie and Anderson, Oppenheim, and Babbie were followed to determine the wording of questions, question type and sequence, and the length of the questionnaire. Since the survey was primarily based on the opinions of the respondents, with a minimal amount of factual enquiry, it was labeled an "Opinion Survey." And to ensure the interest of the residents of West Jasper Place, without drawing their attention to the density issue, the questionnaire was given the full title of "The West Jasper Place Housing Opinion Survey."

The organization of the questionnaire can be summarized as follows:

1. The reaction to present neighbourhood housing and public facilities;
2. The reaction to housing proposed or under construction in the neighbourhood and the anticipated effects on public facilities;
3. The identification of residential design features in the neighbourhood, and their contribution to the residential environment;
4. The preferences expressed towards future housing development by location and housing type criteria;
5. Occupancy profile and household characteristics as they relate to the respondent's present situation.

As suggested by Babbie, the questionnaire begins with basic instructions for the respondents.[1] Essentially, they were asked to choose the answer which most closely matched their own opinion. It was expected that this would lead to a response rate higher than generally associated with self-administered questionnaires, because the questions could be answered in a straightforward fashion. No elaborate responses were required.

To limit the length of the questionnaire and make it easier to complete, the majority of the questions were closed-ended, with a Likert five-point response scale to represent a broad range of possible answers. As Oppenheim points out, closed questions are desirable when the respondent is expected to express an opinion.[7] A choice of five responses was not always necessary, however. In those questions where the respondent was asked to identify the presence of something in the neighbourhood, or if the distinction between, for example, "exceeds" or "strongly exceeds" would not contribute to the information objectives of the survey, only three options were given. Some "fill-in-the-blank" questions were also employed when respondents were asked about their own housing and household characteristics. The advantage of using this format is that it enables the respondent to complete the question much more quickly, particularly when factual information is requested. For example, in answering the question; "How long have you lived at your present address?", it is probably quicker for the respondent to give an answer in an open blank space than to select among a number of specified alternatives. Furthermore, an open blank permits the respondent to answer the question with more detail, such as 3.5 years for the length of occupancy.

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[1] E.R. Babbie, *The Practice of Social Research* (California: Wadsworth publishing Company, 1979), p.323

For all the emphasis on closed questions, open questions played a critical role in identifying the factors which contribute to density reactions. As explained by Oppenheim,

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[7] A.N. Oppenheim(1966), p.43

> "The chief advantage of the open question is the freedom that it gives the respondent. Once he has understood the intent of the question, he can let his thoughts roam freely, unencumbered by a prepared set of replies."[10]

The primary intent of employing the open question in the opinion survey, however, was that it was used in conjunction with a closed question, where the respondents were asked about their reactions to the housing in the neighbourhood. After identifying their reaction, respondents were simply asked in the following question to explain their answer. The use of an open question here is an effective means of determining if there is indeed a density reaction, the characteristics of density that the respondents reacted to and their recommendations for the control of density in their neighbourhood. A further reason for using open questions was the difficulty of always providing a predetermined set of answers. The reasons for selecting an address as a place to live may vary dramatically from price to lot size. To ensure that all possible answers were accounted for, it was necessary to use open questions for information requirements of this type.

To determine question sequence, it was necessary to consider the five organizational sections of the questionnaire presented earlier. In order to make the questionnaire interesting and attractive to the respondent, it was concluded that the first questions should deal with the primary issue of the survey: reaction to present neighbourhood housing. Because of a documented concern for housing issues in the past, it was expected that residents would respond favourably to the initial questions, and this would lead to a desire to complete the remainder of the questionnaire. Factual questions regarding household and occupancy characteristics were placed at the end of the questionnaire, since there is often a tendency for respondents to react negatively to this line of questioning. For comparison purposes and ease of completing the questionnaire, the section on the reaction to future housing immediately followed the first section on present housing. This was to enable the respondent to complete the questionnaire quickly, since the question layout and wording for each section was similar. The sections on neighbourhood design and future housing preferences were strategically placed in the middle of the questionnaire, since it was anticipated that they would consume much of the respondents' time.

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[10] A.N. Oppenheim(1966), p.41

After the organization of the questionnaire was established, each question was worded employing the guidelines suggested by Babbie and Oppenheim. In order to understand the intent of the question sequence and wording, it is necessary to review the contents of each of the five sections in turn.

With the exception of asking for opinions on present as opposed to new housing and related facilities, the number of questions and their wording are exactly the same in the first and second sections. As an example, in Question 2, participants are asked whether they like or dislike the type of housing presently found in their neighbourhood, whereas in Question 9, they are asked for their reaction to new housing development. With one exception (Question 8), the order of the questions in each section is identical. Essentially, the question sequence employed can be summarized as follows:

1. describe the present/new housing in the neighbourhood;
2. ask the opinion of this housing, whether it is liked or disliked;
3. an explanation of this neighbourhood housing opinion;
4. the opinion of different services and facilities in West Jasper Place, presently and after the new housing is fully developed;
5. the distance between the resident's address and multiple housing, and housing proposed or under construction.

In the section dealing with new housing, the "distance question" follows the question asking for the housing description. This was an attempt to make the participant consider distance as a characteristic of the new housing, perhaps sparking further comments on distance in the explanation of the housing opinion. Question 6 separates the first and second sections, and it is commonly referred to as a "contingency" question. Its purpose is twofold: it can facilitate the respondent's task in completing the questionnaire,[11] and it can determine whether residents are aware of new housing. If residents are not familiar with new housing in their neighbourhood, then there is no point in asking for their opinions. As a result, these residents are asked to skip the second section.

The third section of the questionnaire consists of only one question, and it deals specifically with design features presently found in the participant's neighbourhood. Question 12 is divided into two distinct parts: Part 1 asks homeowners to identify whether 17 different design features exist in their neighbourhood, and Part 2 asks for an opinion of these features, as to whether they add, take away or make no difference to the neighbourhood quality. The intent was to try to identify how each of the compared neighbourhoods differs in design and the resident reaction to each design feature, so that it can be determined if there is a relationship between density reactions and the use of design features in residential planning.

The fourth section of the questionnaire contains two questions that are directed towards the future housing preferences of homeowners, with the emphasis on the most appropriate location for more multiple housing (Question 13), and the best alternative housing type to the conventional house (Question 14). The role of Questions 13 and 14 in the survey is that they are a means of providing possible recommendations to alleviate the conflict between single family residents and developers and planners. Data from these questions will identify the locational preferences for multiple housing in Edmonton and the type of housing development that homeowners may accept in West Jasper Place in the future.

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[11] E.R. Babbie(1979), p.319

The final section is an attempt to develop a profile of the residents who participated in the survey, and to determine whether certain occupancy and household characteristics affect housing and density-related reactions. During the development stages of the survey, it was not possible to determine if such occupancy/household characteristics as length of residence, family size and accommodation features are likely to have any influence on reactions to neighbourhood housing. To ensure comprehensive coverage, therefore, the final section was divided in to five parts: length and type of occupancy; accommodation features; selection of present housing; satisfaction associated with present housing; and household characteristics (age and number of persons). With this organization, it was concluded that a comprehensive analysis of the possible occupancy/household characteristics influencing reactions could be achieved.

C. PRETEST OF THE QUESTIONNAIRE

Pilot work and survey pretesting are essential steps towards the successful application of a questionnaire. Both Oppenheim and Burton and Cherry conclude that the questionnaire pretest is a critical part of devising the final wording of questions, constructing an introductory letter and determining the most effective method of distribution.[12] In the present instance, the pretest also provided an opportunity to find out whether density-related biases were present in the question wording, as well as to determine the residents' reaction to the questionnaire and the time that it took to complete.

The pretest was divided into two stages of evaluation: reviewing the questionnaire with faculty members and graduate students who have experience in survey research, and distributing the questionnaire as a pretest to a small group of West Jasper Place residents. The first stage proved to be effective in upgrading question sequence and wording. Most important, it was concluded that the original draft of the questionnaire appeared to be too condensed, and it was recommended that more white space should be used to separate the questions on each page. As an example of a desired layout, it was suggested that the Housing Opinion Survey should be organized in the same format as the Strathcona County Residents' Survey designed by Dr. T.L. Burton. Here, the questions were separated by lines and each question number was separated from the body of the question text, enabling the respondent to identify the start of each question with ease.

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[12] A.N. Oppenheim(1966), pp.25-30 and T.L. Burton and G.E. Cherry(1970), pp.41-42

The improved version of the questionnaire was then distributed among a selected group of residents in Aldergrove. Because they had recently opposed the development of zero lot line housing adjacent to their property, it was thought that they would be aware of housing issues and interested in the Housing Opinion Survey. In late March 1981, Bruce Mintz, who represented the resident group, was contacted and subsequent interviews were held to discuss planning in Aldergrove and the protest issues. On the advice of Mr. Mintz, residents who signed a petition against the development project were contacted and asked to fill out a questionnaire. The forms were dropped off at each resident's house and returned three or four days later. In total, ten residents completed the pretest survey, and they were all asked to comment on their impression of the questionnaire and the time required to complete it.

The reaction was uniformly enthusiastic and much interest was expressed, particularly in the anticipated results of the survey. On average, it took 20-25 minutes to complete the questionnaire. The pretest showed, however, that there were several problems in the wording of questions, and that the respondents were generally confused about the reference to "neighbourhood." To many, neighbourhood represented the block immediately around their own house, while others did not recognize the name "Aldergrove" as it applies to the planned neighbourhood unit. Several respondents referred to their neighbourhood as Primrose, which is really a community of three neighbourhoods in the West Jasper Place area. Additionally, the word "condominium" was used throughout the questionnaire, and respondents were confused as to whether this term referred to self-owned, rental, or both types of accommodation. To alleviate these problems, the word "neighbourhood" was omitted. Instead, for each neighbourhood polled, a special questionnaire was prepared, identifying the neighbourhood by name. As an example, respondents in Aldergrove were asked "How would you describe the housing found in Aldergrove?" Their questionnaire form was accompanied by a map which identified the boundaries of Aldergrove, its main roads and its location in West Jasper Place. The confusion over the use of the word "condominium" was eliminated by making a clear distinction between rental and self-owned accommodations. All rental housing units were referred to as apartments, whereas only self-owned walk-up units, townhouses or row houses were identified as condominiums.

D. SAMPLING AND DISTRIBUTION

As explained in Chapter 4, the Aldergrove, Callingwood and Westridge neighbourhoods were selected for the survey, so that resident reactions could be compared across a complete range of residential environments. Furthermore, single-family homeowners in all three neighbourhoods have been involved in some form of protest related to housing development where density is a primary issue.

A decision had next to be made regarding the most effective distribution method and an appropriate sample size for each neighbourhood. For the distribution method, the social research literature focuses on personal interview and mail survey techniques. More recently, the drop-off and pick-up method has been discussed briefly. For the Housing Opinion Survey of neighbourhoods in West Jasper Place, it was concluded that traditional methods of distributing questionnaires would not be effective in meeting the objectives of the thesis research. Mail distribution was avoided because of the anticipation of poor response rates. An example is provided by the Canada Works Project in which a survey of social facilities in West Jasper Place generated a 26 percent return. [13] Although the discussion of the "drop off and pick up" technique is extremely limited in the research literature, it was concluded that it would be an effective way of meeting the objectives of the thesis research. A "drop off and pick up" distribution includes many of the advantages of both the mail questionnaire and the personal interview techniques:

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[13] *Edmonton Journal*, May 21,1979

1. A large sample of the population can be achieved;
2. The time required to conduct a sample is reduced over interview techniques;
3. Personal contact is made with the participant;
4. The approach for asking the participant questions and the presentation of the questionnaire is consistent;
5. The possiblities of bias are minimal.

For this survey, however, the primary advantage of "drop off and pick up" distribution was that it is not as imposing as a personal interview. An interview situation requires the participant to "drop everything" when the interviewer knocks on the door, and the participant must commit the next half hour to answering questions. Combined with a continous barrage of surveys from different sources, this truly represents an inconvenience. As with the interview, the drop off technique still represents a commitment to complete the survey, but it provides an opportunity for the respondent to answer the questions at a time that is convenient. Since the respondent knows that the canvasser will return in a few days to pick up the questionnaire, a sense of responsibility is maintained.

To assist the respondents in returning the questionnaire at a time that was convenient for them, an answering machine was employed as part of the "pick-up" process. During the "drop-off" stage, participants were told that the canvasser would return in three to four days. But, if this proved to be inconvenient, they had the opportunity to call and arrange a suitable time for the questionnaire to be picked up. Additionally, the participants were asked to leave a message with the answering machine if they completed the questionnaire before the predetermined pick-up time. As a further part of this concern to make it as easy as possible for participants to return questionnaires, they were asked to place the completed survey in their mailboxes if they would not be home at the arranged pick-up time.

To determine an effective sample size for the Housing Opinion Survey, it was necessary first to determine the population of detached houses in the Aldergrove, Callingwood and Westridge neighbourhoods. A total count was therefore made by car survey, and as a base for zoning and housing layout, the City of Edmonton Land Use District Map published in January 1981 was employed. As it turned out, the layout and lot division displayed in this map were extremely accurate, with less than a one percent error identified. For the purposes of sampling, vacant lots were not included in the total detached housing count, though they were plotted on the map for future reference. The results can be summarized as follows:

1. Aldergrove - 558 detached houses
2. Callingwood - 105 detached houses
3. Westridge - 418 detached houses

Therefore, the total population for the study area is 1081.

Because there has been so little evaluation of the "drop-off and pick-up" distribution method, it was difficult to anticipate the probable return rate. In an interview with Dr. T.L. Burton, it was pointed out that surveys similar in subject matter and design have yielded returns between 40 and 50 percent.[14] It was therefore concluded that, to be sure of receiving a minimum of at least 100 completed questionnaires, the sample size would have to be greater than 20 per cent of the population.

In determining an effective sample size, the research literature focuses on mathematical formulas. It was not feasible to use any of these in West Jasper Place, however, because such mathematical variables as the "degree of confidence" and "maximum allowable error" cannot be estimated for an opinion. Unfortunately, alternative methods are not recommended in the research literature. To set a sample size for the Housing Opinion Survey, it was concluded that it would be most effective to look at the population size for each neighbourhood and calculate the number of questionnaires required for at least a 20 per cent sample. In the case of Aldergrove, with its population of 558 detached houses, this converted into a sample of 120 households. The same number was decided upon for Westridge, despite its smaller population. This really reflected uncertainty about the likely response from a neighbourhood where density issues had not had a high profile. Yet, Westridge represented a critical component of the survey because it is a neighbourhood dominated by single family housing. Determining an appropriate sample size for Callingwood presented a different problem because its population of detached houses is so small. A 20 per cent sample, or 20 questionnaires, would not be large enough to yield meaningful results. It was therefore decided that 80 Callingwood residents should be canvassed, with a return of 40 questionnaires anticiapted.

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[14] Personal Interview with Dr. T.L. Burton, April 2,1981.

Table 9 summarizes the questionnaire sampling for each neighbourhood in the study area, along with the anticipated returns. With the adjustments in Westridge and Callingwood, the total sample turned out to be larger than anticipated: 320 questionnaires or 30 per cent of the population.

The distribution of the questionnaire took place between April 17 and May 9, 1981, with canvassing completed one neighbourhood at a time. After reviewing various sampling techniques, it was concluded that a systematic sample employing stratified zones to test the distance factor would be the most effective method of achieving a distribution with low bias. As suggested in the literature, systematic sampling is desirable if the population is small and manual procedures are relied upon to determine the

TABLE 9

QUESTIONNAIRE DISTRIBUTION AND SAMPLING FOR THE STUDY AREA

	Population	Sample	Sample % of Population	Anticipated Returns	Actual Returns
Neighbourhood					
Aldergrove	558	120	22	60	91
Callingwood	105	80	76	40	56
Westridge	418	120	29	60	90
Total Study Area	1081	320	30	160	237

sample. Essentially, systematic sampling uses an interval selection, where one out of "x" number of people is consistently selected. The most common procedure is to employ a list, from which as an example, every fourth person or housing unit might be chosen. First, however, it is necessary to pick a random starting point in the population, to avoid the danger of consciously selecting a sample that has a favourable pattern. This still leaves the danger of unwittingly selecting a sample which contains periodicity; that is, the population is arranged in a pattern that coincides with the sampling interval.[18] An example, in area sampling, would be the consistent selection of houses on corner lots. Because of a crescent system of roads in the study area and the inconsistent number of houses in different neighbourhood blocks, it was thought that problems of periodicity would not affect the distribution of the Housing Survey.

Stratification by zones was introduced because one of the objectives of the thesis research is to determine if distance between different housing types and homeowners is a factor that influences density reactions. The Callingwood neighbourhood could not be treated in this way, because the population is too small and no house is more than a block away from multiple housing, but stratification was applied in Aldergrove and Westridge. The purpose of a stratified sample is to provide an alternative to sampling the population at large, in an effort to determine if a common element of a group affects the responses in the survey. As Babbie concludes:

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[18] E.R. Babbie(1979), p.178

> "The ultimate function of stratification, then, is to organize the population into homogeneous subsets (with heterogeneity between subsets) and to select the appropriate number of elements from each."[16]

For the Housing Opinion Survey, the element which distinguishes the groups of single family homeowners is the distance from multiple housing. Figures 6 (Aldergrove) and 7 (Westridge) show the breakdown of the neighbourhood populations into four zones or strata, and Figure 8 shows the location and layout of the single family housing in the Callingwood neighbourhood. Because of the layout and shape of the neighbourhoods, it was impossible to divide the strata into an equal number of housing lots or similarly sized areas. Instead, a crude maesure of block width was employed to give the following breakdown: all detached houses less than a block away from multiple housing would be in Zone 1, between one and two blocks - Zone 2, two and three blocks away - Zone 3, farther than three blocks - Zone 4.

To test the effects of the neighbourhood distance factor through a comparison of responses by strata or zone, it was apparent that an equal number of questionnaires had to be distributed in each zone. This created some problems in the sampling and distribution procedures, because of the

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[16] E.R. Babbie(1979), pp.180-181

FIGURE 6

SURVEY DISTRIBUTION IN ALDERGROVE

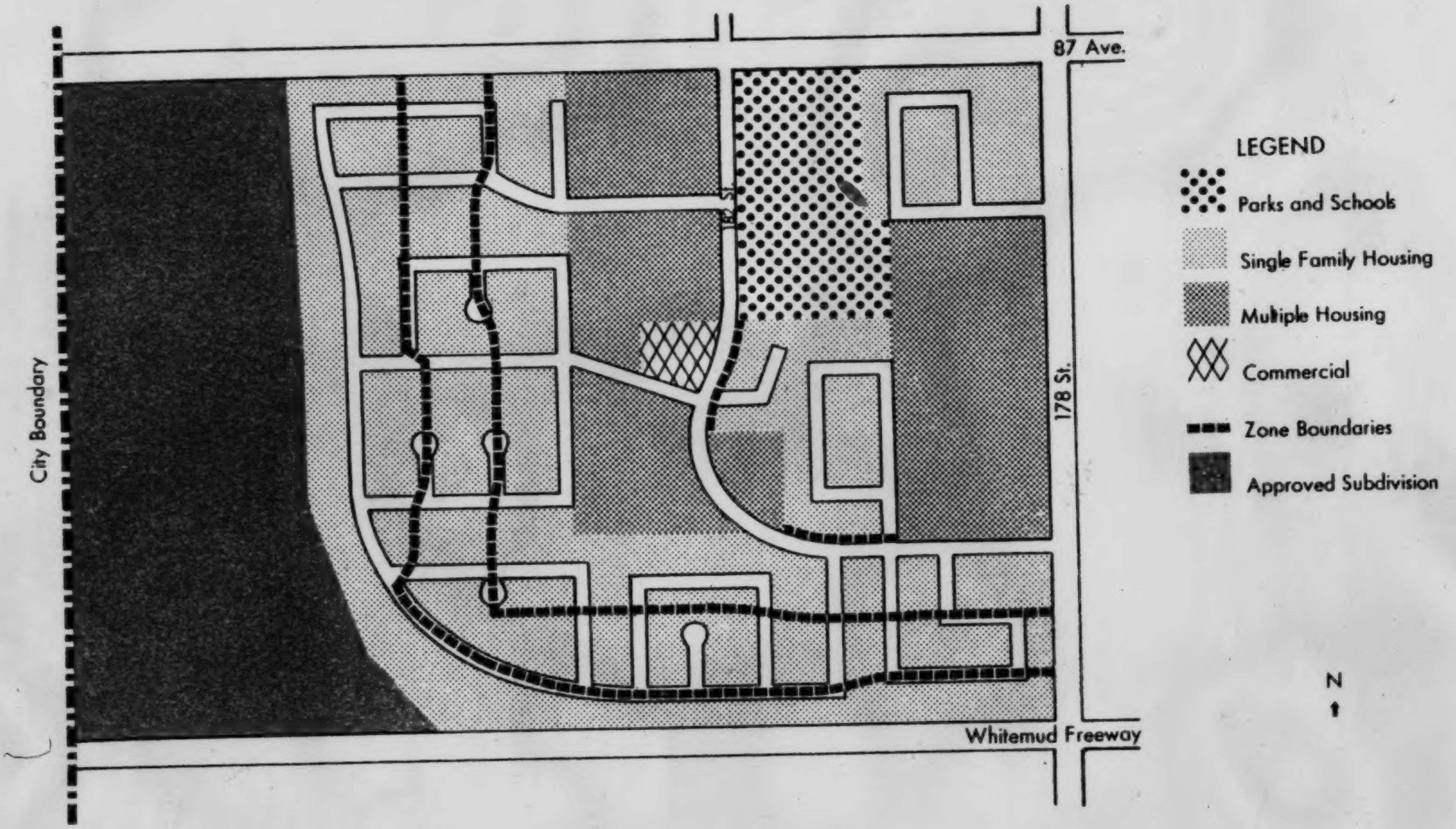

87 Ave.
178 St.
Whitemud Freeway
City Boundary
LEGEND
Parks and Schools
Single Family Housing
Multiple Housing
Commercial
Zone Boundaries
Approved Subdivision
N

FIGURE 7

SURVEY DISTRIBUTION IN WESTRIDGE

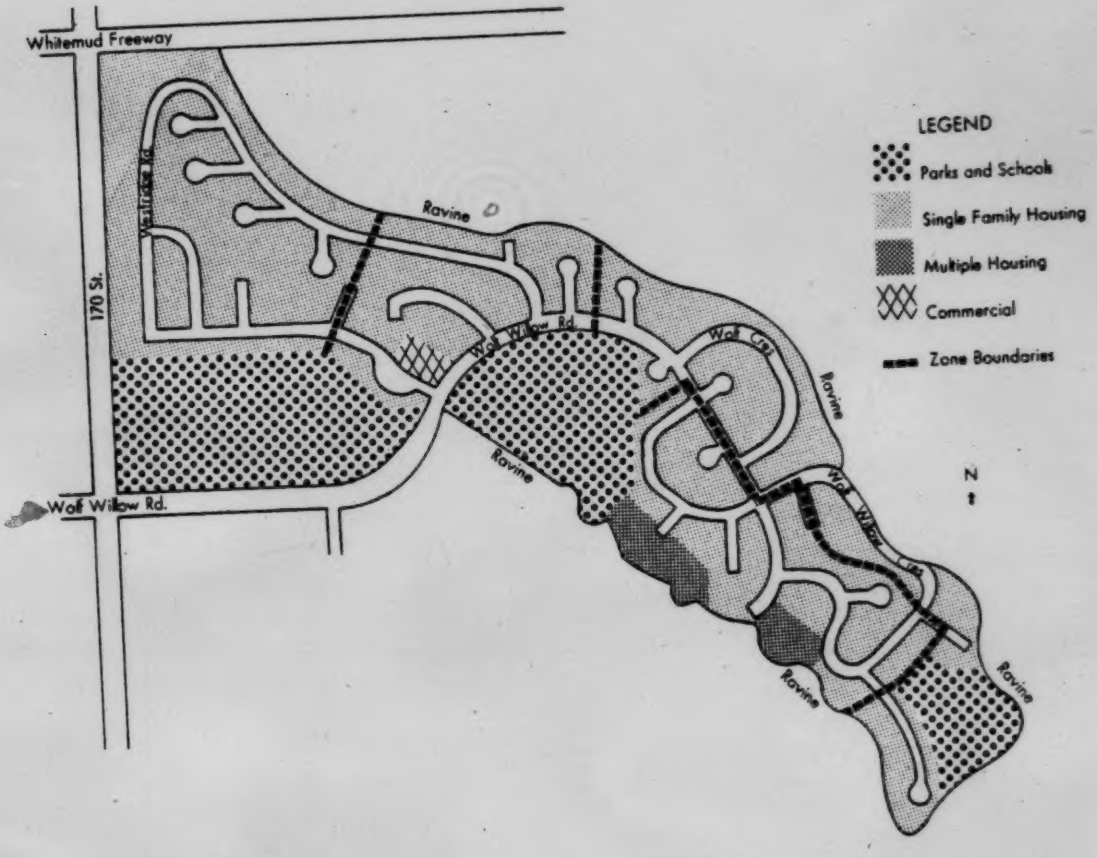
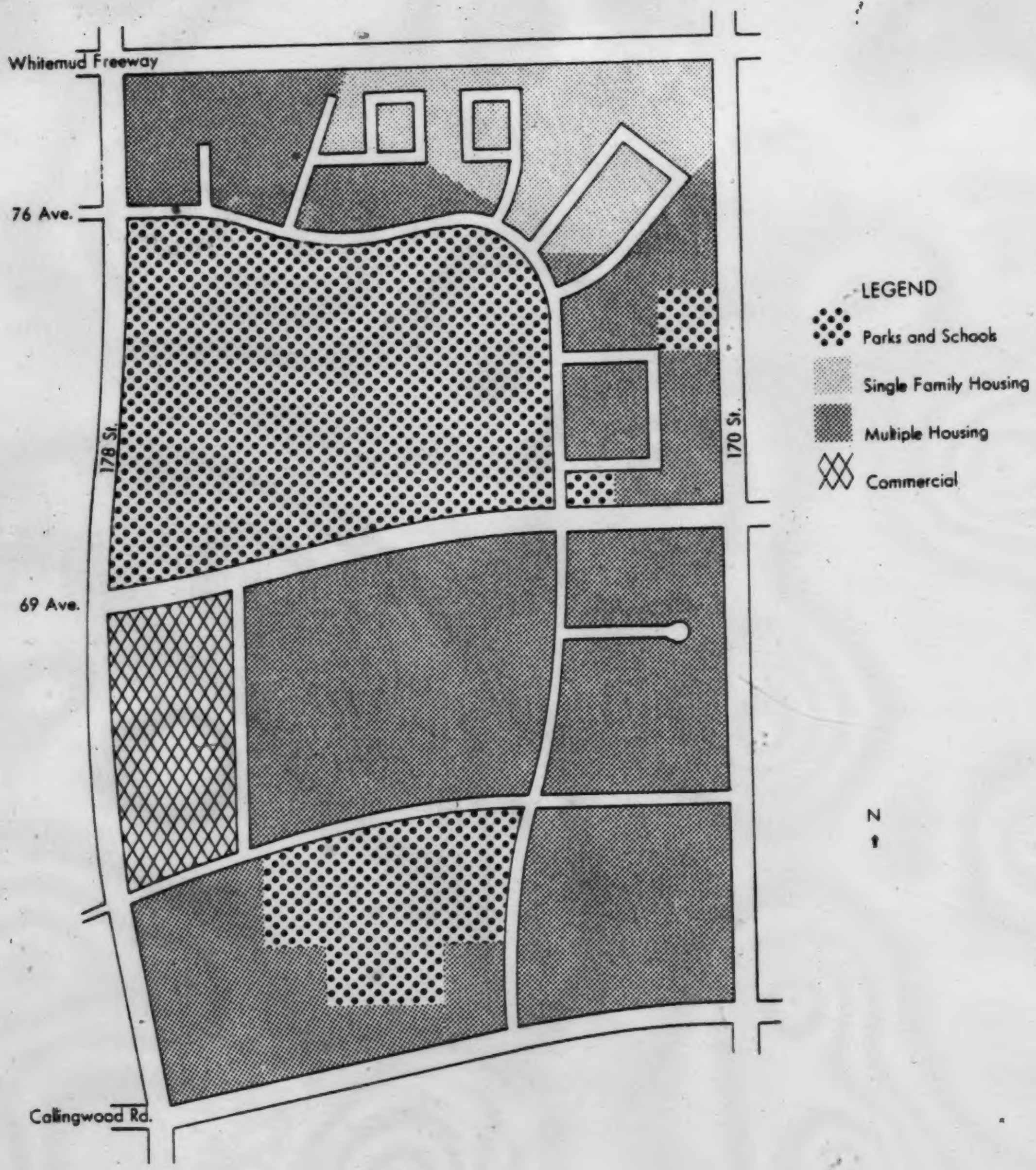

Whitemud Freeway
Westridge Rd.
170 St.
Ravine
Wolf Willow Rd.
Wolf Cres.
Ravine
Ravine
Wolf Willow Rd.
Wolf Willow Cres.
Ravine
Ravine
LEGEND
Parks and Schools
Single Family Housing
Multiple Housing
Commercial
Zone Boundaries
N

FIGURE 8

SURVEY DISTRIBUTION IN CALLINGWOOD


Whitemud Freeway
76 Ave.
178 St.
170 St.
69 Ave.
Callingwood Rd.
LEGEND
Parks and Schools
Single Family Housing
Multiple Housing
Commercial
N

variable number of housing lots per zone. As an example, the range in Westridge was from 73 in Zone 1 to 146 in Zone 4. To accommodate the neighbourhood total of 120 questionnaires, or an equal distribution of 30 questionnaires in each of the four zones, it was apparent that the sampling interval in Aldergrove and Westridge would have to vary among the zones. The procedure that was adopted was to count the number of single family houses in a zone and then identify the interval that would be required to distribute 30 questionnaires systematically. For example, in Zone 2 of Aldergrove, where there are 131 houses, every fourth house would have to be sampled.

After a random starting point was selected for each neighbourhood, the questionnaires were distributed in person, with the sampling interval determining the selection of participants. A different sampling interval was determined for each zone, except in Callingwood. This was the most difficult neighbourhood to sample, since the sample size at the end of the distribution represented over 75 per cent of the population. Initially, a random starting point, every second house was asked to participate in the survey. Once this was completed, another random starting point was determined from the remaining houses, and the balance of the sample was completed.

A conscious effort was made to maintain a consistent approach for introducing the survey to the sampled homeowners. This was crucial to the overall success of the survey, since the immediate reaction of the residents to the canvasser and the questionnaire would greatly affect the final response rate. I introduced myself immediately and explained where I was from. The purpose of the survey was then explained, and it was emphasized that the results would be entirely anonymous and confidential. It was also stressed that it would be greatly appreciated if the questionnaire could be completed within four or five days. When residents agreed to participate, they were immediately thanked and reminded that I would return in four or five days to pick up the form.

Although the initial acceptance rate was over 90 per cent, there were some homeowners who were not interested in participating in the survey, and others were not at home during canvassing times. When this situation was encountered, one of two procedures was followed: either the house immediately next door was polled or an additional house at the end of the stratum was canvassed using the sample interval for selection. The choice of procedure depended directly on the stratum population and the sample size and interval. If the population was large and could accommodate further interval sampling after the initial distribution was completed, this procedure was employed. For small populations, as in Callingwood, however, interval sampling after the initial distribution could not be accomplished, and there was no alternative but to canvass an immediate neighbour.

During the pick-up stage of the questionnaire distribution there were many instances where participants did not set a mutually agreeable time or, more commonly, they could not be reached at home. To avoid numerous return visits to a participant's residence, a follow-up letter was left in the mailbox if contact could not be made (Appendix 1). This had the advantage of letting the participants know that I had returned to pick up the questionnaire. They were then asked to make use of the telephone answering machine. As with the personal introduction of the survey, it was critical to follow a consistent procedure during the pick up stage. If there was no response within three days of the follow-up letter, a second visit was made in an effort to catch the participant at home. At this point in the return process, the participant had had more than a week to complete the questionnaire. If personal contact was made during the second visit and the questionnaire was still not completed, the participant was asked to call the answering machine to arrange a pick up. In many cases, however, contact could still not be made, but since a follow-up letter was delivered, further visits were not necessary. Regardless of the circumstances encountered in the pick up stage of the distribution, no more than two return visits were attempted to each respondent. This format was based on the belief that if the participant was interested in returning the questionnaire, it would be placed in the mailbox for the canvasser or contact would have been attempted through the telephone answering machine.

E. RESPONSE TO THE HOUSING OPINION SURVEY

From the initial stages of the questionnaire returns, it became apparent that a high response rate for the survey would be achieved (Table 5). The telephone answering machine also proved to be most effective. It was used for nearly 35 per cent of the surveys that were returned. For the remainder, the majority of participants left the questionnaires in their mailboxes. Regardless of the neighbourhood canvassed, less than 10 per cent of the entire sample required a follow up letter. The delays in returning questionnaires were therefore minimal.

Table 10 summarizes the questionnaire returns for the study area, distributed by neighbourhood and zone. The response rate of 74 per cent was much higher than had been anticipated in the preliminary stages of the survey. It was also consistent across the neighbourhoods, though there was some variation in the zone response rates in the Aldergrove neighbourhood. In particular, Zone 4 was extremely high (97 per cent); indeed it represented the most striking inconsistency in the entire survey. The explanation, apparently, was that residents in Zone 4 had recently opposed the development of a housing project immediately to the west of their property, as described in Chapter 4. In contrast to their high response, there is no obvious reason for the comparatively low returns (66 per cent) in Zones 2

TABLE 10

QUESTIONNAIRE RETURNS

	Number Distributed	Number Returned	Returns in Percent	Population	Percent of Population (Returns)
Neighbourhood					
Aldergrove	120	91	76	558	16
Zone 1	30	22	73	108	20
2	30	20	67	131	15
3	30	20	67	158	13
4	30	29	97	161	18
Callingwood	80	56	70	105	53
Westridge	120	90	75	418	21
Zone 1	30	24	80	73	33
2	30	23	77	126	18
3	30	21	70	73	29
4	30	22	73	146	15
Total Study Area	320	237	74	1081	22

and 3 of Aldergrove.

VI. CHAPTER SIX

RESULTS OF THE HOUSING OPINION SURVEY

A. INTERPRETATION OF THE QUESTIONNAIRE DATA

To transform the individual questionnaire responses into raw data for the survey analysis, optical scanning sheets were used to to minimize errors during the data transfer. Since only one step is involved, optical scanning is a more reliable method of data transformation than conventional coding and key punching.

The statistical analysis was carried out with the assistance of the MIDAS computer program package. Through the use of MIDAS commands, straight counts of the responses were calculated for each question, and cross-tabulations were developed between those responses where it was conceivable that a relationship would exist. However, upon reviewing the resulting data, it was apparent that the open questions (Q3, Q10, Q19, Q21, Q23 and Q26) generated too many codes. It was therefore difficult to draw conclusions from the low frequencies (less than five) which commonly resulted. As an example, 37 different codes were employed to describe the detailed responses to Question 3, and 25 of these 37 had frequency counts of less than five. Essentially, this problem can be traced back to the coding stage, where too fine a differentiation of responses was made. Additionally, it appeared that many of the codes were overlapping in their representation of responses. Obviously, the coding for open questions had to be changed, so that highly descriptive codes accounting for detailed distinctions in responses would be replaced by codes representing a more common, higher frequency reaction. In the upshot, the number of response codes per question ranged from seven (Q23) to eleven (Q21). During the "recoding process," special care was taken to code every response that seemed likely to have implications for the density issue.

A sample copy of the questionnaire and summary tabulations of the responses are provided in Appendices 1 and 2. Appendix 1 also includes the follow-up letter and the maps of the neighbourhood boundaries that were referred to in the introduction to the survey. Appendix 2 presents the question data as the actual frequencies of responses at the zone, neighbourhood, and total sample area levels.

For the most part, the survey data did not lead themselves to sophisticated methods of analysis. Normally, it was not possible to do more than enumerate the responses, or to compile cross-tabulations, particularly in the first two sections where respondents were asked for their opinions on present neighbourhood housing and neighbourhood housing after projects under construction or proposed were completed. Through the cross-tabulation technique it was hoped that it would be possible to determine the relationship between the way in which respondents identified the housing in their neighbourhood and their reaction to it. For example, was the reaction to multiple housing consistent throughout the study area? Elsewhere in the survey, and particularly in those questions dealing with future housing preferences and occupancy/household characteristics, it was uncertain whether relationships did exist. Since each question was designed to facilitate the application of cross-tabulations, however, the process of identifying possible associations between the responses to different questions was achieved through systematic elimination. For example, cross-tabulations between present and new housing questions and occupancy characteristics questions were developed, and if a relationship was not identified, it was concluded that this occupancy characteristic was not influential. Thus, it was eliminated from further consideration.

Cross-tabulations are often accompanied by statisical tests, most notably the chi-square test, which compares "the actual number of cases *observed* in each category and the number of cases *expected* in each category."[1] Essentially, an attempt is made to test the null hypothesis, which is based on the proposition that the observed frequencies of each category do not differ from the expected frequencies. For the purposes of the thesis research, however, it was concluded that the chi-square test could not be used to determine if any of the associations identified in the cross-tabulations are statistically significant. There are assumptions and limitations associated with the test that reduce its applicability in the analysis of the housing opinion survey. In particular, it is difficult to use the chi-square test in the analysis of data from zones or when there is a low frequency of response to certain questions. In the case of evaluating data at the zone level, with a return of 50 per cent in a sample size of 30, the resulting frequency would be only 15. If these 15 responses are then distributed through several possible answers, as on a Likert five point scale, the resulting frequencies are commonly less than five. Both Mansfield [2]and Ott et al. [3]identify one of the requirements of the chi-square test as a frequency of 5 or more responses in each matrix cell. If the response rate for one or more cells in a matrix resulting from a cross-tabulation is less than five, then the chi-square test can not be used effectively. Since this limitation affects nearly all of the data analysis in the West Jasper Place survey, particularly at the zone level of sampling, it was concluded that straight counts and cross-tabulations were the most that could be done. They therefore represent the primary forms of analysis.

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[1] R.H. Kolstoe, *Introduction to statistics for the behavioral sciences* (Illinois: The Dorsey Press, 1973), p.235

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[2] E. Mansfield, *Statistics for Business and Economics* (New York: W.W. Norton and Company, 1980), p.292

[3] L. Ott, W. Mendenhall and R.F. Larson, *Statistics: A Tool for the Social Sciences* (Mass: Duxbury Press, 1978), p.244

B. OCCUPANCY PROFILE AND HOUSEHOLD CHARACTERISTICS

Before discussing the reactions to present housing and facilities, a profile of the residents who participated in the survey will be presented. This is based on information obtained from Questions 15 to 25, as presented in Appendix 2.

From Questions 24 and 25 it was found that the residents in all three neighbourhoods represent a population of young families, with the average household consisting of between three and five members. The age group with the highest frequency was 35-44 years, followed by 25-34 years. The frequencies for the four age groups between 0 and 19 years were comparatively consistent. In Westridge, there were a greater number of families who had five or more members. This can be partially explained by the availability of larger houses than in Aldergrove and Callingwood.

The results from Questions 15 and 16 show that while more than 95 per cent of the participating households own their present housing, the average length of occupancy varies among the neighbourhoods. For example, more than 50 per cent of the Callingwood respondents have lived in their neighbourhood for seven years or more, whereas less than five per cent have done so in the other neighbourooods. In Aldergrove and Westridge, the majority have lived at their present address between two and five years, an obvious reflection of the later phasing of their development.

When asked why they selected their present address as a place to live (Question 19) the majority of respondents said it was because of the desirable neighbourhood/location or individual housing characteristics. The two most common responses were that they liked the location (relation to work, area in the city, etc.) or the house/lot (size, style, etc.). One special response, which showed up particularly in Westridge, referred to the quality of neighbourhood planning. Westridge respondents often commented favourably on such natural features as the tree coverage and proximity to ravines, and their absence in the other neighbourhoods may explain why "like neighbourhood planning" was not often mentioned there. Another special response, particularly in Aldergrove, identified the importance of purchase price in the selection of a place to live. Although this may be attributed to many factors, the availablity of comparatively cheap detached houses is the most obvious explanation.

To determine how residents felt about their present housing situation, they were asked if living at their present address had worked out as expected, better, or not as well, and if they intended to stay at their present addrress indefinately. Regardless of the neighbourhood considered, a review of the responses in Questions 20 to 23 indicates that a clear majority of residents said that they were generally satisfied with their present housing situation and that they intended to stay. "Not as expected" responses in Question 20 were minimal, ranging from only two per cent in Westridge to 26 per cent of the total responses in Callingwood. When asked about future intentions, the largest group (41 per cent) indicated that they expected to stay at their present address. An almost equal number was not sure whether they would stay or not, but, as can been seen from Question 23, this uncertainty was not related to characteristics of the neighbourhood environment. Rather, it was a reflection of changing housing and location requirements, due either to relocation, changing household size or dissatisfaction with present housing accommodation.

In general, it can be concluded from the profile data that the survey population satisfied the requirements of the research design. The high proportion of owner-occupiers was particularly important, but other characteristics of the sample bore just as directly on the issue of development density. The length of occupancy, the relatively young age of the families, and the satisfaction with present housing, all suggest that these residents have made a commitment to West Jasper Place as their home. When viewed against the history of resident protests in the area, it can be inferred that this commitment includes a general concern about the future of the neighbourhood environment, and the implications of further housing development.

C. REACTION TO PRESENT HOUSING

The analysis of the reactions to existing neighbourhood housing was based on of Questions 1 through 5. The interpretation begins with an analysis of the effects of distance upon the responses in Aldergrove and Westridge.

Before the survey, it was anticipated that the reactions of residents in zones closest to multiple housing would not be as positive towards the existing quality of neighbourhood housing as those who lived in the zones farthest away. In fact, however, distance was not a determining factor, and this pattern of response was relatively alike throughout all three neighbourhoods. The responses for facilities/amenities also showed a minimal variation among the zones. This consistency to the contrary, however, the pattern of responses in Aldergrove and Westridge may not be attributed solely to characteristics within the neighbourhoods. As described in Chapter 5, the zone distribution scheme was based on a division by block measurements, with four zones representing a four block radius within the neighbourhoods. It is therefore possible that the distance separating the zone closest to multiple housing from the zone farthest away is simply not enough to affect the neighbourhood reactions. But, because the questionnaires were distributed by neighbourhood, it was impossible to test the distance factor beyond the boundaries of any single neighbourhood, or to determine if there is some maximum distance beyond which the perception of the effects of multiple housing is immaterial. It is also possible that the sample size for each zone was simply too small, although there is no guarantee that larger samples would have lead to the identification of a relationship between increasing distance and the type of reaction expressed. Conceivably, a larger sample size could just reinforce the consistency of response. As it stands, the value of identifying that responses to present housing in Aldergrove and Westridge are independent of distance lies in its implication for the planning of new residential development. The data suggest that the distance between different housing types is not an important consideration in neighbourhood design, at least from the perspective of the single-family homeowners.

The responses to Question 5, which asked for an estimate of the closest distance to multiple housing, were so inconsistent that a pattern could not be identified. As suggested in Chapter 5, one of the motives behind this question was to make respondents think about distance, in the hope of provoking comments about the distance-related characteristics of neighbourhood housing. In fact, this rarely happened. Furthermore, the estimated distances often do not resemble the actual distances. In Zones 2 and 3 in Westridge, for example, the estimated distances ranged from one block to seven or more, whereas in reality the distances were between three and five blocks. Because of the problems encountered in interpreting the responses for Question 5, it was concluded that these data could not be employed effectively for cross-tabulations or other forms of analysis. If distance-related measurements were required, reference would have to be made to the actual zone distribution rather than to the distances perceived by of the study area residents.

As anticipated, the responses for Question 1, which asked for a description of neighbourhood housing types, were very accurate. For the Aldergrove neighbourhood, 92 per cent of all respondents identified the housing as a mixture of detached houses and multiple housing, although 29 per cent thought the multiple housing was scattered and 63 per cent thought it was concentrated. Of the three neighbourhoods polled, the Callingwood perceptions varied the most, for although all of the respondents said that the neighbourhood contained multiple housing, there was no agreement as to whether the housing was primarily multiple (23 per cent), or a mixture of detached houses and scattered multiple (19 per cent), or concentrated multiple (56 per cent). The Westridge residents were more consistent in their perceptions; in 70 per cent of the responses, the neighbourhood was considered to consist primarily of detached houses, while the remainder saw it as a mixture of detached and concentrated multiple housing.

As an identification question, the primary function of Question 1 was to obtain responses to be used in conjunction with Question 2, which asked for an opinion about neighbourhood housing. From a cross-tabulation of these two questions, it was hoped that it would be possible to identify relationships between perceptions of housing type and opinions about neighbourhood quality.

Table 11 shows the responses to Question 2 for each neighbourhood in the study area. The pattern suggests a definite association between housing densities and the expressed reactions. It is apparent that the likelihood of a negative reaction towards neighbourhood housing increases relative to the amount of multiple housing found in the neighbourhood. In Westridge, 93 per cent of all respondents said they either liked or strongly liked the present housing character of their neighbourhood. In Aldergrove and Callingwood, however, the response pattern undergoes a dramatic turnaround; 56 per cent of all Aldergrove respondents and 58 per cent in Callingwood indicated that they either dislike or strongly dislike the housing found in their neighbourhood. This suggests that the presence of multiple housing greatly affects resident's reactions, regardless of the actual amount within the neighbourhood. Thus, although Callingwood was described in Chapter 4 as a neighbourhood dominated by multiple housing, as opposed to Aldergrove where a mixture of detached and multiple housing was identified, it is apparent that the strength of the response is not appreciably different.

In Tables 12, 13 and 14, cross-tabulations of the responses for Questions 1 and 2 are presented for each of

TABLE 11

RESPONSES TO QUESTION 2 IN PERCENT (%)

Neighbourhood	Strongly Like	Like	Indifferent	Dislike	Strongly Dislike	No Response
Aldergrove	4	22	17	39	17	1
Callingwood	2	14	24	42	16	2
Westridge	60	33	2	5	0	0
Total Study Area	24	24	13	27	11	1

TABLE 12

CROSS-TABULATION FOR QUESTIONS 1 + 2 - ALDERGROVE

	Perceived Housing Mix			
	detached	multiple	scattered multiple	concentrated multiple
Reaction to Housing				
strongly like	0	0	0	3 (3.3%)
like	2 (2.2%)	0	6 (6.7%)	12 (13.3%)
indifferent	0	2 (2.2%)	2 (2.2%)	12 (13.3%)
dislike	0	2 (2.2%)	12(14.4%)	20 (22.2%)
strongly dislike	0	1 (1.1%)	6 (6.7%)	9 (10.0%)

No Response: 1% of the neighbourhood participants.

TABLE 13

CROSS-TABULATION FOR QUESTIONS 1 + 2 - CALLINGWOOD

	Perceived Housing Mix			
	detached	multiple	scattered multiple	concentrated multiple
Reaction to Housing				
strongly like	0	0	1 (1.8%)	0
like	0	1 (1.8%)	1 (1.8%)	6 (10.7%)
indifferent	0	2 (3.6%)	4 (7.1%)	8 (14.3%)
dislike	0	7 (12.5%)	4 (7.1%)	13 (23.2%)
strongly dislike	0	3 (5.4%)	1 (1.8%)	5 (8.9%)

No Response: 2% of the neighbourhood respondents.

TABLE 14

CROSS-TABULATION FOR QUESTIONS 1 + 2 - WESTRIDGE

	Perceived Housing Mix			
	detached	multiple	scattered multiple	concentrated multiple
Reaction to Housing				
strongly like	43(47.8%)	0	1 (1.1%)	10 (11.1%)
like	20(22.2%)	0	1 (1.1%)	9 (10.0%)
indifferent	0	0	0	2 (2.2%)
dislike	0	0	0	4 (4.4%)
strongly dislike	0	0	0	0

No Repsonse: 0

the respective neighbourhoods in the study area. From this it becomes clear that those residents of Westridge (Table 10) who like or strongly like the present housing conditions there also perceived the housing to be primarily detached. That comes as no surprise, but a comparison of Tables 8 and 9 shows a strong similarity in housing reactions for Aldergrove and Callingwood. In both neighbourhoods, the highest response category was that present housing is disliked and it is perceived as a mixture of detached and concentrated multiple housing. For that matter, the majority of those Aldergrove and Callingwood respondents who thought the neighbourhood housing was primarily multiple or scattered multiple also indicated a dislike or strong dislike. From these response patterns, it can be concluded that regardless of the perceived concentration of multiple housing, the majority of residents will react negatively towards the quality of housing in their neighbourhood once the amount of multiple housing has crossed some threshold of perceived intrusiveness. Although *more* residents identified the multiple housing as concentrated, this does not indicate that dissatisfaction increased with the degree of perceived concentration. The strong negative responses towards any form of multiple housing in both Aldergrove and Callingwood leaves open the question of whether the overall density of the neighbourhood housing was not the factor that residents were reacting to. Rather, it must be wondered whether the reaction was based specifically on housing type preferences, and the negative characterisitcs commonly associated with multiple housing.

The answers for Question 3 presented in Table 15 and the cross-tabulations for Questions 2 and 3 (Tables 16, 17 and 18) provide some support for this initial observation. The most common reasons supporting a particular reaction to present housing conditions are directly related to the type housing found in the neighbourhood, and the negative or positive characteristics with which it is most often associated. "Too much multiple housing" and "like the planning of the neighbourhood" are by far the most frequent responses for Question 3, and although they represent opposite reactions, they are both reactions to the type of housing. The "too much multiple" reaction was most evident in Aldergrove (21 per cent) and Callingwood (33 per cent), whereas it represents one of the lowest responses (8 per cent) in Westridge.

The problems that single family homeowners associate with multiple housing have already been reviewed. While it can be assumed that density-related characteristics represent a substantial component of the reaction "too much multiple housing," it is impossible to isolate density as the underlying cause. In many cases, respondents discussed the characteristics of multiple housing that they consider to be undesirable, yet the word "density" was never used and many components of density were not considered. Still, it can be argued that by indicating that there is too much

TABLE 15

RESPONSES TO QUESTION 3 IN PERCENT (%)

	too much multiple housing	opposes rental multiple housing	housing types should be segreg.	neigh. too high of density	like design of neigh. housing	dislike design of neigh. housing	like planning of neigh.	neigh. is over-crowded	no response
Neighbourhood									
Aldergrove	21	3	13	5	2	12	23	6	7
Callingwood	33	2	2	16	9	5	19	4	10
Westridge	8	1	11	1	24	4	42	0	9
Total Study Area	22	2	10	6	12	7	29	3	9

TABLE 16

CROSS-TABULATION FOR QUESTIONS 2 + 3 - ALDERGROVE

	Reaction				
	strongly like	like	indiff.	dislike	strongly dislike
Reason					
too much multiple housing	0	2 (2.4%)	2 (2.4%)	15 (17.6%)	8 (9.4%)
opposes rental multiple housing	0	1 (1.2%)	1 (1.2%)	1 (1.2%)	0
housing types should be segreg.	0	1 (1.2%)	1 (1.2%)	8 (9.4%)	2 (2.4%)
neigh. too high of density	0	0	0	3 (3.5%)	1 (1.2%)
like design of neigh. housing	0	2 (2.4%)	0	0	0
dislike design of neigh. housing	0	0	3 (3.5%)	6 (7.1%)	2 (2.4%)
like planning of neighbourhood	3 (3.5%)	10 (11.8%)	7 (8.2%)	1 (1.2%)	0
neigh. is overcrowded	0	1 (1.2%)	0	1 (1.2%)	3 (3.5%)

No Response: 7% of the neighbourhood participants.

TABLE 17

CROSS TABULATIONS FOR QUESTIONS 2 + 3 - CALLINGWOOD

	Reaction				
	strongly like	like	indiff.	dislike	strongly dislike
Reason					
too much multiple housing	0	1 (2.0%)	2 (3.9%)	13(25.5%)	3 (5.9%)
opposes rental multiple housing	0	0	0	0	1 (2.0%)
housing types should be segreg.	0	0	0	1 (2.0%)	0
neigh. too high of density	0	0	1 (2.0%)	5 (9.8%)	3 (5.9%)
like design of neigh. housing	0	0	1 (2.0%)	1 (2.0%)	0
dislike design of niegh. housing	0	0	1 (2.0%)	2 (3.9%)	0
like planning of neighbourhood	1 (2.0%)	3 (5.9%)	6(11.8%)	0	1 (2.0%)
neighbourhood is overcrowded	0	0	0	2 (3.9%)	0

No Response: 11% of the neighbourhood participants.

TABLE 18

CROSS TABULATIONS FOR QUESTIONS 2 + 3 - WESTRIDGE

	Reaction				
	strongly like	like	indiff.	dislike	strongly dislike
Reason					
too much multiple housing	2 (2.4%)	3 (3.7%)	0	2 (2.4%)	0
opposes rental multiple housing	1 (1.2%)	0	0	0	0
housing types should be segreg.	5 (6.1%)	3 (3.7%)	0	1 (1.2%)	0
neigh. too high of density	0	1 (1.2%)	0	0	0
like design of neigh. housing	16(19.5%)	6 (7.3%)	0	0	0
dislike design of neigh. housing	0	2 (2.4%)	0	1 (1.2%)	0
like planning of neighbourhood	26(31.7%)	12(14.6%)	0	0	0
neigh. is overcrowded	0	0	0	0	0

No Response: 9% of the neighbourhood participants.

multiple housing, residents are indeed saying that there are simply too many housing units in the neighbourhood. In essence then, this response can be interpreted as a reaction against housing densities and the size of the neighbourhood population. To reinforce this interpretation, many respondents discussed the undesirable characteristics of multiple housing in terms of the conflict with their own high priority needs. As an example, Aldergrove and Callingwood homeowners have maintained that public facilties and neighbourhood amenities are inadequate, and in answering Question 3, many respondents associated these planning-related deficencies with their observation that there is too much multiple housing in their neighbourhood. The same link was evident in responses where residents identified congestion and parking problems in the streets providing access to multiple housing projects. Education facilities were also picked out; a common complaint in the survey was that neighbourhood schools have become overcrowded since the development of multiple housing began.

The difficulty of distinguishing between density reactions and non-density reactions is evident again in the most frequent response: that the sample residents like the planning of their neighbourhood. While a favourable response can be taken to indicate that residents are satisfied with such characteristics as the mixture of housing types and their placement and proximity to each other, the planning element which most greatly influences their replies cannot be determined. It is open to question whether residents who like neighbourhood planning are indeed reacting towards the mixture of housing types, which may be interpreted as a component of density, or if the reaction is merely directed towards a component of residential design, such as the layout of streets and the arrangement of the single family housing. As an example, 12 per cent of the Westridge residents who said they liked the planning of their neighbourhood also indicated that this was because of the type of people who were attracted there, while 37 per cent said their reason for liking neighbourhood planning was the limited *low cost* housing development, whether in multiple or detached dwellings.

Considering the reactions towards present housing for the total survey population as shown in Table 11, it seems that only 9 per cent of the reponses can be distinctly identified as density reactions. There is, however, a direct relationship between the frequency of density reactions and the density of the neighbourhoods. Two specific responses were common as density reactions: residents said either that their neighbourhood was overcrowded or that its density was too high. The highest rate of identifiable density reactions (16 per cent) is in Callingwood. In contrast, only one per cent of the residents in Westridge had a recognizable density reaction.

Another response pattern evident in Question 3 is that the lower the density for a particular neighbourhood, the greater the likelihood that residents will react favourably to the design of housing. Table 11 shows that when compared with Aldergrove and Callingwood, more than twice as many residents in Westridge (24%) indicated that they liked the design of neighbourhood housing. Considering the mixture of housing types and the quality of housing found in each neighbourhood, it is apparent that Westridge residents were reacting to the high quality (often custom designed) of the single family housing that is most prevalent in their neighbourhood.

As with the questions dealing with opinions on present housing, the pattern of response for Question 4 indicated a relationship between the level of density for each neighbourhood and the type of resident reactions. In general, the higher the level of neighbourhood density, the greater the likelihood that residents would react negatively to present facilities and amenities(Table 19). Of the eighteen different facilities/amenities listed in Question 4, the Westridge sample reacted negatively to the provision of only one, as opposed to nine for Aldergrove and eleven for Callingwood. This margin is typical of the response patterns found throughout the section dealing with present housing. Moreover, although the respondents were asked to give their opinions about the provision of facilities and amenities in *West Jasper Place*, the response patterns suggest that the neigbourhood environment is really what influences the reaction. Ideally, the answers to Question 4

TABLE 19

RESPONSES TO QUESTION 4 IN PERCENT %

	Aldergrove				Callingwood				Westridge			
	inad.	adeq.	excd.	no res.	inad.	adeq.	excd.	no res.	inad.	adeq.	excd.	no res.
open space	59	37	0	4	19	70	9	2	4	85	8	3
transportation	27	69	1	3	28	68	2	2	9	89	0	2
bus transit	16	76	2	6	14	77	5	4	22	68	8	2
commercial	3	89	7	1	14	77	7	2	19	71	7	3
elementary sch.	22	74	0	4	10	81	2	7	37	57	2	4
junior high	73	16	0	11	77	18	0	5	35	59	2	4
senior high sch.	64	26	0	10	74	21	0	5	40	53	1	6
daycare	35	31	0	34	40	23	0	37	30	40	0	30
police-fire pro.	19	76	1	4	18	74	2	7	18	81	0	1
religous fac.	44	48	1	7	39	53	1	7	37	57	0	94
recreation centl	25	64	2	9	79	18	0	3	7	83	9	1
public library	67	29	0	4	70	28	0	2	39	59	1	1
tennis-basketball	82	10	0	8	84	12	0	4	17	74	7	2
adult programs	30	58	0	12	56	39	0	5	17	78	2	3
teen fac.	66	13	0	21	82	10	0	8	43	41	0	16
private spt. clubs	54	35	1	10	70	25	0	5	30	61	2	7
street safety	44	55	0	1	60	37	0	3	32	67	1	0
pools, rinks, etc.	63	31	0	6	86	12	0	2	32	66	1	1

should not have varied throughout the study area. The Westridge reaction to the amenities of West Jasper Place is therefore coloured by the fact that the residents simply like their neighbourhood as a place to live. When asked about any housing or facility-related characteristics of their environment, the reaction will be favourable. The same consistent tendency is evident in Aldergrove and Callingwood, except that there it is in a negative direction.

In addition to an increase in the number of negative reactions towards facilities as neighbourhood density increases, it is evident from Table 15 that there are other response frequencies that have important implications for planners. Throughout the survey population, the number of respondents indicating that a facility or amenity is in excess of present needs was very low, typically near 1-2 per cent and not more than 9 per cent (Callingwood - response to open space). It can therefore be concluded that the construction of facilities has not been completed ahead of schedule to meet anticipated future demand. Rather, the provision of facilities has either kept pace with needs or is simply not adequate for present neighbourhood populations. This suggests that while there has been no "over-development" of facilities or excessive expenditure of tax moneys, plans for extending the provision of facilities should be reviewed to ensure that they will be effective in meeting future demand. Table 15 also shows that while the *number* of inadequate facilities varies amongst neighbourhoods, some facilities are identified as inadequate everywhere. For instance, respondents in all three neighbourhoods said that recreation opportunities and facilities for teenagers were inadequate, and a common list of eight features was identified as inadequate in Aldergrove and Callingwood. These similarities, particularly in Aldergrove and Callingwood, suggest that the problem of inadequate facilities and amenities is a real one.

D. REACTION TO NEW HOUSING

This section of the analysis deals with reactions towards housing that is proposed or under construction. It will become apparent that many of the response patterns identifiable here are the same as those identified in Part C. However, in contrast to the 238 residents who answered the questions on present housing, only 149 completed the second section. As explained in Chapter 5 the role of Question 6 was to separate those respondents who knew about new housing from those who did not. Only the former were asked to complete Questions 7-11.

As with the responses to present housing, the value of analysis by zones was extremely limited. With the number of respondents reduced by more than one third, the sample sizes were too small to be representative. Fewer than fifteen residents answered questions in many of the zones, and the responses were often divided among five or more possible answers. Once again, then, the analysis of response rates must be limited to the neighbourhood level.

Questions 7 and 9 are the equivalents of Questions 1 and 2. In response to Question 7, the description of new housing was consistent with the mixture of housing types already found in the neighbourhoods. Because most of the future development in Westridge is the infill of private vacant lots, the highest frequency response was "detached housing of the same size" (81 per cent). In contrast, in Callingwood, because the West Edmonton Village project had received a high profile from the press, and because it clearly dominated all other housing construction activity there, it was not surprising to find that 55 per cent of the respondents described new neighbourhood housing as apartments. The highest frequency responses of Aldergrove residents were split between descriptions of detached (25 per cent), small lot housing (28 per cent), and a mixture of multiple and detached dwellings (23 per cent). As in Westridge, the new housing development in Aldergrove is largely consistent with the present mixture of dwelling types. It is dominated by the Cadillac-Fairview project located to the exteme west of the neighbourhood, where a mixture of conventional and small lot detached housing is proposed.

Tables 20, 21 and 22 show cross-tabulations between Questions 7 and 9 for each of the three neighbourhoods. It is apparent that the response pattern is similar to that

TABLE 20

CROSS-TABULATION FOR QUESTIONS 7 + 9 - ALDERGROVE

	Type of Housing					
	detached	apartment	condominium	small lots	detached multiple	don't know
Reaction to Housing						
strongly like	2 (3.3%)	0	0	0	0	0
like	4 (6.6%)	0	0	4 (6.6%)	2 (3.3%)	0
indifferent	8(13.1%)	0	1 (1.6%)	4 (6.6%)	3 (4.9%)	4 (6.6%)
dislike	0	0	1 (1.6%)	4 (6.6%)	3 (4.9%)	0
strongly dislike	1 (1.6%)	3 (4.9%)	2 (3.3%)	6 (9.8%)	7(11.5%)	2 (3.3%)

No Response: 33% of the neighbourhood participants.

TABLE 21

CROSS-TABULATION FOR QUESTIONS 7 + 9 - CALLINGWOOD

	Type of Housing					
	detached	apartments	condominiums	small lots	detached multiple	don't know
Reaction to Housing						
strongly like	0	0	0	0	1 (3.3%)	0
like	0	0	0	0	0	0
indifferent	0	0	1 (3.3%)	0	0	1 (3.3%)
dislike	0	1 (3.3%)	0	0	2 (6.6%)	0
strongly dislike	0	16(53.3%)	1 (3.3%)	0	7(23.3%)	0

No Response: 47% of the neighbourhood participants.

TABLE 22

CROSS-TABULATION FOR QUESTIONS 7 + 9 - WESTRIDGE

	Type of Housing					
	detached	apartments	condominiums	small lots	detached multiple	don't know
Reaction to Housing						
strongly like	13(27.1%)	0	0	0	0	0
like	15(31.3%)	0	0	1 (2.1%)	0	0
indifferent	12(25.0%)	1 (2.1%)	1 (2.1%)	1 (2.1%)	0	1 (2.1%)
dislike	1 (2.1%)	0	1 (2.1%)	0	0	0
strongly dislike	0	1 (2.1%)	0	0	0	0

No Response: 47% of the neighbourhood participants.

expressed towards present housing: in general terms, as the density of the identified new housing increases, there is a greater likelihood that the reaction will be negative. In terms of housing types, reactions towards detached dwellings were generally positive throughout the sample population while respondents reacted negatively towards any type of multiple housing. At the neighbourhood level, Callingwood and Westridge permit a clear cut interpretation: 89 per cent of all Callingwood residents answering Questions 7 and 9 either disliked or strongly disliked new housing because it was described as multiple or containing multiple, and in Westridge, where only 9 per cent of all residents answering these questions described new housing as multiple, less than 7 per cent said they either disliked or strongly disliked the new housing in their neighbourhood. In the Aldergrove cross-tabulation (Table 16), the rows indicate that residents were either indifferent (32.8%) or strongly disliked (34.4) new housing, regardless of type. Although the pattern of liking detached housing and disliking multiple housing closely resembles Callingwood and Westridge, the concentation of responses in the indifferent and strongly dislike rows indicate that there may be a factor other than housing type which has influenced the reaction.

Regardless of the conflicting responses that have emerged from the cross-tabulation for Aldergrove, there is one consistent response towards new housing throughout the study area: the strong dislike for apartments or rental housing. Table 17 shows that more than 50 per cent of the Callingwood residents answering Questions 7 and 9 said they have a strong dislike for new neighbourhood housing because it is apartment development, while Table 16 indicates that virtually all of the Aldergrove residents who identified new housing as apartments said that they strongly disliked this type of development. As was inferred from the review of the housing literature in Chapter 3, this type of reaction could be anticipated because of the common negative connotations of apartments, such as transiency, vandalism and increased automobile traffic. However, for the purposes of the thesis research and subsequent planning recommendations, the most significant response pattern is the same as was found as in the first section: what can be called a "neighbourhood effect," where there is a definite relationship between the density and mixture of housing types found in each neighbourhood and the response patterns for these living environments. Higher density housing types incite negative reactions.

Tables 23, 24 and 25 are cross-tabulations for Questions 9 and 10. They are designed to identify relationships between the type of reaction to the housing proposed or under construction and the reason for that reaction. While the response patterns generally follow those observed from Tables 12, 13 and 14, there is clearer evidence of reactions based on density and related

TABLE 23

CROSS-TABULATIONS FOR QUESTIONS 9 + 10 - ALDERGROVE

	Reaction				
	strongly like	like	indiff.	dislike	strongly dislike
Reason					
too much multiple housing	0	0	3 (5.3%)	2 (3.5%)	4 (7.0%)
opposes rental multiple housing	0	0	0	0	3 (5.3%)
devel. not close to residence	0	0	5 (8.8%)	0	0
neigh. too high of density	0	0	0	0	4 (7.0%)
devel. similar in character	2 (3.5%)	7(12.3%)	6(10.5%)	0	0
poor neigh. services/amenities	0	0	2 (3.5%)	1 (1.8%)	2 (3.5%)
dislike planning of neighbourhood	0	1 (1.8%)	1 (1.8%)	2 (3.5%)	3 (5.3%)
zoning changed to multiple	0	0	2 (3.5%)	2 (3.5%)	4 (7.0%)
neighbourhood is overcrowded	0	0	0	1 (1.8%)	0

No Response: 37% of the neighbourhood participants.

TABLE 24

CROSS-TABULATIONS FOR QUESTIONS 9 + 10 - CALLINGWOOD

	Reaction				
	strongly like	like	indiff.	dislike	strongly dislike
Reason					
too much multiple housing	0	0	1 (3.4%)	0	4 (3.8%)
opposes rental multiple housing	0	0	0	0	1 (3.4%)
neigh. too high of density	0	0	0	2 (6.9%)	10(34.5%)
development similar in character	1 (3.4%)	0	0	0	0
poor neigh. services/amenities	0	0	0	0	4(13.8%)
neighbourhood is overcrowded	0	0	0	1 (3.4%)	5(17.2%)

No Response: 49 % of the neighbourhood participants.

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TABLE 25

CROSS TABULATIONS FOR QUESTIONS 9 + 10 - WESTRIDGE

	Reaction				
	strongly like	like	indiff.	dislike	strongly dislike
Reason					
too much multiple housing	0	1 (2.6%)	0	0	0
devel. not close to residence	0	0	3 (7.9%)	0	0
neigh. too high of density	0	0	1 (2.6%)	0	1 (2.6%)
devel. similar in character	12(31.6%)	8(21.1%)	5(13.2%)	0	0
dislikes planning of neighbourhood	0	4(10.5%)	1 (2.6%)	2 (5.3%)	0

No Response: 58% of the neighbourhood participants.

characteristics rather than on housing type.

Fewer than 6 per cent of Westridge respondents referred to density in the explanation of their housing reaction, but this was to be expected, because of the dominance of single family dwellings in the neighbourhood. It was more surprising to find that the explicit density reactions did not increase in Aldergrove. In fact, the number of density reactions for housing proposed or under construction were under 10 per cent in Aldergrove (8.8 per cent) and Westridge (5.2 per cent). In Callingwood, however, there was a dramatic increase to 21.6 per cent, and more than 60 per cent of the residents answering Questions 9 and 10 said they disliked or strongly disliked new housing because of the densities associated with the development.

Another interesting response pattern over the full sample is the drop in the number of people who thought there was "too much multiple housing." It accounted for less than 16 per cent of the reactions towards new housing in each of the study area neighbourhoods. This supports the earlier conclusion that in responding to housing at the proposal or construction stage, residents are less concerned about the type of housing and more likely to react strongly towards the implications of an increase in neighbourhood population.

It was indicated earlier that when compared with the reactions towards present housing, the total number of indifferent responses was greater for new housing. This tendency was particularly evident in Aldergrove and

Westridge, where the number of indifferent responses increased from 16.5 per cent (Aldergrove) and 1.2 per cent (Westridge) to 33.4 and 26.3 per cent respectively. Although this could not be explained from the analysis of the cross-tabulations between Questions 7 and 9, Tables 19 and 21 indicate that residents who reacted indifferently towards new housing most commonly said that the development was not close to their residence or it was similar in character to existing neighbourhood housing. That is, it was not seen to be posing a threat to their property or lifestyle.

In Question 8, the respondents were asked to estimate the distance between their houses and the new housing. As with Question 5 in the previous section, however, it was difficult to interpret the results. As an example, although 23 per cent of the Callingwood residents answering Question 8 said the new housing was five of more blocks away from their address, the actual distance to the highly profiled West Edmonton Village can be estimated at three to four blocks. In Westridge, it is impossible to determine the effect of distance on reactions towards proposed or new housing when it is merely the scattered infilling of single family lots which can be found in virtually every neighbourhood zone. Since there was also a low response rate, the data from Question 8 were excluded from the analysis.

Table 26 summarizes the responses to Question 11, in which the provision of public facilities and services was

TABLE 26

RESPONSES TO QUESTIONS 11 IN PERCENT %

	Aldergrove				Callingwood				Westridge			
	inad.	adeq.	excd.	no res.	inad.	adeq.	excd.	no res.	inad.	adeq.	excd.	no res.
Type of Facility												
open space	56	12	0	32	46	11	0	43	8	45	6	41
transportation	46	22	0	32	47	9	0	44	5	45	6	44
bus transit	34	29	0	37	32	23	0	45	13	40	5	42
commercial	11	54	4	31	23	30	2	45	12	39	6	43
elementary school	37	32	0	31	44	12	0	44	29	27	0	44
junior high school	57	9	0	34	53	4	0	43	27	28	0	45
senior high school	55	11	0	34	51	5	0	44	24	28	2	46
daycare	37	13	1	49	42	2	0	56	21	20	0	59
police-fire pro.	29	38	1	32	33	16	2	49	9	44	2	45
religious fac.	37	29	1	33	35	19	0	46	23	27	1	49
recreation cent.	36	30	1	33	54	2	0	44	9	41	6	44
public library	53	16	0	31	47	9	0	44	25	31	0	44
tennis-basketball	62	4	0	34	47	7	0	46	12	40	3	45
adult programs	41	25	1	33	44	9	0	47	11	42	1	46
teen fac.	53	7	0	40	51	2	0	47	28	20	0	52
private spt. clubs	53	12	0	35	44	9	2	45	18	33	1	48
street safety	34	33	0	33	47	9	0	44	28	29	0	43
pools, rinks, etc.	63	7	0	30	51	2	0	47	24	33	0	43

addressed again. By employing the same list of facilities as in Question 4, it was possible to compare the perceived adequacy of facilities to meet present needs with the perceived adequacy for future needs. In fact, although there was an increase in the number of facilities that are thought to be inadequate, the pattern of responses for each neighbourhood closely resembles Question 4. Aldergrove and Callingwood respondents had a large number of negative reactions, while Westridge respondents had very few. In Callingwood, everything except commercial facilities was expected to be inadequate; in Aldergrove everything but commercial facilities and police and fire protection. In contrast, only three facilties in Westridge (elementary schools, daycare and teen facilties) were considered to be inadequate for future needs. As became apparent in the analysis of the present housing section, respondents in Aldergrove and Callingwood are critical of what they see as the failure to keep pace with increases in neighbourhood population, whereas the Westridge participants generally like the environment in which they live, and tend to have a favourable view of its services and amenities.

As with Question 4, no facilities were thought to "exceed" future needs in any of the study area neighbourhoods. In Aldergrove and Callingwood however, commmercial facilities were the only ones that were considered to be inadequate for present needs, yet adequate for future needs. This can be attributed to the opening of

West Edmonton Mall in September 1981, a project hailed by its developers as the largest of its kind in Canada.

E. REACTION TO DESIGN FEATURES

Tables 27 and 28 summarize the responses to Parts 1 and 2 of Question 12, in which residents were asked to indicate their awareness of seventeen different design features and to offer their opinions on the desirability of each. Unlike the response patterns noted in the previous sections, reactions to design features were consistent throughout the sample area. The respondents also had similar opinions about the value of each feature's contribution to the quality of their neighbourhood.

Of the seventeen features listed in Question 12 , the majority of Aldergrove residents said that ten do not exist in their neighbourhood, as compared with nine in Callingwood and seven in Westridge. To a large degree these were features that can be readily overlooked, since their purpose is primarily an aesthetic or landscape one. Conversely, seven features were consistently reported to be present. These were parks, sidewalks, bike paths, street lighting, underground lines, cul-de-sacs and houses not in the shade of high rise buildings, all of which appear to be more easily recognized than earth berms or tree barriers.

It can be concluded from the response patterns shown in Table 24 that, regardless of the neighbourhood, residents felt that the features that do not actually exist would add

TABLE 27

RESPONSES TO QUESTION 12 - PART 1 IN PERCENT %

	Aldergrove			Callingwood			Westridge		
	Yes	No	Don't Know	Yes	No	Don't Know	Yes	No	Don't Know
Design Feature									
alleys + lanes	8	88	4	9	79	12	7	91	2
parks/tot lots	52	38	10	51	42	7	97	2	1
sidewalks/curbs	99	0	1	96	0	4	97	2	1
ped./bike paths	86	11	3	84	12	4	94	5	1
land barriers/berms	24	56	20	84	5	11	73	18	9
shrub/tree barriers	24	69	7	23	68	9	54	36	10
street lighting	98	2	0	96	0	4	98	1	1
underground lines	92	1	7	95	0	5	98	0	2
common fencing	27	60	13	21	65	14	42	43	15
open space dividers	32	63	5	18	74	8	50	37	13
one way streets, etc.	31	63	6	37	53	10	30	63	7
cul-de-scas	85	11	4	68	21	11	99	1	0
houses not in shade	53	31	16	60	30	10	67	29	4
restricted parking	24	57	19	14	61	25	16	56	12
colour/material restrictions	9	56	35	5	46	49	11	56	33
artificial lakes/ponds	0	99	1	0	89	11	2	96	2
external maintenance	11	57	32	7	46	47	13	60	27

TABLE 28

RESPONSES TO QUESTION 12 - Part 2 IN PERCENT %

	Aldergrove				Callingwood				Westridge			
	Add	Take Away	No Diff.	No Response	Add	Take Away	No Diff.	No Response	Add	Take Away	No Diff.	No Respon.
Design Feature												
alleys + lanes	22	43	32	3	21	37	32	10	29	59	10	2
park/totlots	89	0	4	7	86	5	2	7	86	2	8	4
sidewalks/curbs	82	0	12	6	77	0	16	7	79	2	12	7
ped./bike paths	88	0	5	7	81	2	11	6	86	2	8	4
land barriers/berms	62	5	23	10	75	2	14	9	74	7	10	9
shrub/tree barriers	90	1	5	4	87	2	4	7	86	4	4	6
street lighting	85	0	11	4	81	0	11	8	90	1	3	6
underground lines	82	0	10	8	78	0	11	11	88	1	4	7
common fencing	59	9	23	9	42	16	32	10	48	24	18	10
open space dividers	84	3	8	5	68	11	14	7	62	9	20	9
one way streets, etc.	29	27	37	7	32	23	35	10	24	38	31	7
cul-de-sacs	69	4	22	5	49	9	35	7	73	7	16	4
houses not in shade	65	14	12	9	58	23	7	12	63	22	9	6
restricted parking	65	14	14	7	63	21	8	8	56	19	17	8
colour/material restrict.	55	9	29	7	51	19	18	12	49	16	26	9
artificial lakes/ponds	83	8	7	2	79	5	9	7	61	14	20	5
external maintenance	78	1	14	7	77	3	9	11	62	13	17	8

to the quality of their neighbourhood, with the exceptions of alleys/lanes and one way streets. For many features identified as not present, the "add to the quality" reaction clearly dominated all responses in each of the study area neighbourhoods, which suggests that residents see these features as important contributors to the quality of their living environment. In particular, residents indicated strongly that while external maintenance regulations, artificial lakes/ponds, restricted parking, open space dividers and tree barriers and land berms (excepting Westridge) were not evident in their neighbourhood, they add to quality. While Westridge residents indicated that open space dividers, tree barriers and land berms are present, a review of the neighbourhood plan and personal observations showed that they do not represent planned design features.

Some straightfoward planning implications can be interpreted from Question 12. According to the respondents, the neighbourhoods under analysis lack a variety of design features that contribute to the aesthetic qualities of a living environment. Landscaping appears to be deficient or non-existent, and as a result, represents an aspect of design that, based on residents' opinions, should be improved.

F. FUTURE HOUSING DEVELOPMENT PREFERENCES

This section consists of an analysis of responses to Questions 13 and 14, where residents were asked their opinions about desirable locations for multiple housing and the best alternative to the conventional single family house. Table 29 provides a summary of the responses to Question 13. Looking at the sample area as a whole, 30 per cent of all residents polled said they thought more multiple housing should be scattered throughout the city, which represents nearly twice the frequency of the second and third most common responses (no multiple housing, 18 per cent, near city centre, 15 per cent). Although the Aldergrove and Westridge response patterns are consistent with the total sample area, the Callingwood respondents are different in the respect that they felt that there was already enough multiple housing in Edmonton; and as a result, the frequency of response for "no multiple" was nearly the same as "scattered throughout the city." "Areas between the centre and newer suburbs" provoked the lowest response rates in Callingwood and Westridge, while Aldergrove residents see new suburbs as the least appropriate location for more multiple housing. This break in the response pattern mirrors the reactions to other questions, most notably Question 3, where Aldergrove residents strongly voiced their displeasure with the amount of multiple housing in their neighbourhood. When the city center and near center responses are combined, however, a

TABLE 29

RESPONSES TO QUESTION 13 IN PERCENT (%)

	Residential Areas						
	new suburbs	scattered in city	city center	near center	areas between	no multiple	no response
Neighbourhood							
Aldergrove	4	35	10	15	10	19	7
Callingwood	11	23	14	14	7	21	10
Westridge	15	30	8	17	6	15	9
Total Study Area	10	30	10	15	8	18	9

majority of respondents in all neighbourhoods see the inner parts of Edmonton as the most suitable location. Therefore it can be concluded that, in general, the preferred locations for multiple housing are the city center and scattered concentrations throughout the city.

In Question 14 the participants were asked to specify which type of housing they felt was the best alternative to the conventional house. Table 30 provides a summary of their preferences, and as the response patterns in each neighbourhood indicate, they continued to react unfavourably towards apartments. When combined with the favourable reaction to condominiums, it seems that it is not the development of multiple housing that is opposed so much as rental tenure with all its undesirable connotations. The responses to Question 14 also show a definite preference for detached housing alternatives. When the small lot and zero-lot line responses are combined, 56 per cent of all respondents in the study area prefer detached housing compared with 38 per cent who prefer multiple housing. Aldergrove and Callingwood respondents did not differentiate particularly among condominiums, small lot and zero-lot line, as the response rates ranged only five per cent among these three housing types. While many Westridge residents also thought small lot and zero lot line represented the best alternative, with 46 per cent of the total responses, neighbourhood residents showed a definite preference for condominiums. In a neighbourhood dominated by detached

TABLE 30

RESPONSES TO QUESTION 14 IN PERCENT (%)

	Type of Housing				
	apartments	condos	small lot	zero lot-line	no response
Neighbourhood					
Aldergrove	5	27	33	31	4
Callingwood	0	29	32	29	10
Westridge	3	46	26	19	6
Total Study Area	3	35	30	26	6

housing, it could be assumed that this characteristic would greatly influence preferences and that Westridge residents would specify other forms of detached housing as the best alternative. The favourable reaction towards comdominiums can be explained by two factors associated with Westridge: the unobtrusive, high quality condominium projects presently found there, and the respondents' expressed concern about land value depreciation and the desire to live in an environment where the quality of the housing is consistent. Although Question 14 is general, in the sense that it asks for an opinion of alternative housing types, regardless of the location, it can be inferred, once again, that the neighbourhood environment has greatly influenced the Westridge responses.

For each neighbourhood, a cross-tabulation between Question 13 and 14 was developed to determine if preferences for the location of multiple housing are related to opinions regarding alternative housing types. Unfortunately, they produced no additional insight into the pattern of response, and definite relationships could not be identified.

G. CONCLUSIONS

Although the primary objective of the survey was to determine reactions to the density of neighbourhood housing, it was found that, in the majority of cases, it was difficult to be sure that the answers could be attributed to a density perception. While some definite density reactions could be identified, they represented only a small portion of the total responses. Indeed, the most common reactions seemed to be towards housing type rather than density, as in the negative reactions towards the amount of multiple housing and neighbourhood planning. The density implications of these responses had to remain largely speculative, from which it was concluded that firm recommendations for the planning applications of the density concept cannot be derived from the sections of the questionnaire dealing with present and new housing.

For all their inconclusiveness, however, the response patterns in the present and new housing sections showed that there is a definite relationship between neighbourhood environments and the *type* of reaction towards housing and public facilities and amenities. This relationship, which is a form of positive feedback, can be called the "neighbourhood effect." It indicates that reactions towards any residential characteristics will be greatly influenced by the way the neighbourhood is regarded as a place to live. If residents like their neighbourhood, as in Westridge where the "neighbourhood effect" was first noticed, there is a tendency to react favourably towards *any* of the neighbourhood's characteristics or features. In contrast, the Callingwood respondents made it clear that they do not like the design of their neighbourhood and its mix of housing types. As a result, when asked about specific features, their reactions were consistently negative. There is also a definite relationship between the way residents view their neighbourhood, on the one hand, and density and housing type, on the other. The greater the density of the neighbourhood and the amount of multiple housing that it contains, the more likely it is that residents will react negatively towards neighbourhood characteristics. Responses from Aldergrove and Callingwood also showed that the presence of multiple housing greatly affects resident's reactions, regardless of the perceived concentration in the neighbourhood.

The section dealing with new housing showed that the "neighbourhood effect" intensified when residents were asked about the housing proposed or under construction. Furthermore, the number of responses based on density increased, indicating that residents were less concerned about housing types and more concerned about the effects of an increase in density and the implications of a larger neighbourhood population. This pattern was particularly noticeable in Callingwood, where more residents said they strongly disliked the new or proposed housing, and a greater proportion based their reaction on density. The concern about the adequacy of community facilities in Aldergrove and Callingwood is also consistent with this pattern. The second section also provided evidence that residents in all three neighbourhoods dislike apartments much more than other types of multiple housing, and that much of the opposition towards apartments was based on the connotations of renting.

One of the most significant findings in the survey data was that the distance between housing types in a neighbourhood is not an important influence on reactions towards housing or other residential features. Because the response patterns were relatively alike throughout the four zones in the Aldergrove and Westridge neighbourhoods, it can be concluded that the relative locations of different housing types in the neighbourhood have a minimal influence on the reactions of residents. Rather, it is the type of housing and the way in which it is integrated into the neighbourhood housing mix that affects housing and related reactions.

The section of the survey addressing design features revealed, in contrast to the previous sections, a consistent pattern of response throughout all three neighbourhoods. The sample populations expressed similar opinions about the valuable contribution of these features to the quality of the residential environment. There was also unaminous agreement that the features thought to be missing would add to neighbourhood quality. While the pattern of response for identifying design features and their contribution was consistent throughout the sample area, there is evidence of the "neighbourhood effect" in Westridge when comparing those features which are actually present to the features perceived to be present by residents. Aldergrove and Callingwood residents were very accurate in identifying the design features that are not evident in their neighbourhood.

In Westridge, however, residents indicated that more design features are present than there actually are, specifically, open space dividers, tree barriers, and land berms. This suggests that the "neighbourhood effect," or the favourable impression of the neighbourhod environment, has influenced their perception of the presence of desirable design features.

The section asking residents for their preferences on the location and type of future housing development reinforced the conclusions from the present and new housing sections that residents felt there was enough multiple development in West Jasper Place, and that there is generally an unfavourable reaction towards apartments and the concept of rental occupancy. While residents do not completely reject the further development of multiple housing in West Jasper Place, they would prefer to see a scattered distribution of small concentrations throughout the city or locations in the city center. Condominium development is not opposed as an alternative to the conventional detached house, but residents in all three neighbourhoods indicated definite preferences for alternative forms of detached housing as opposed to multiple. This supports the argument in Chapter 3 that there is still a reluctance to accept multiple housing as a practical alternative to the single family house.

Finally, on the basis of the profile data of those participating in the survey, it has to be concluded that occupancy and household characteristics do not influence or contribute to the reactions of single family residents towards neighbourhood housing, housing types, facilities or any related living environment variables covered in the previous sections. One of the primary objectives in this section of the questionnaire was to collect data that could be cross-tabulated with opinions about present and new housing conditions. In fact, definite relationships could not be identified. The lack of pattern in the cross-tabulations was consistent throughout the sample area.

The conclusions developed from the analysis of resident profile data indicates that it is the "neighbourhood effect" that is important in influencing housing and housing-related opinions, not the characteristics of residents. As a result, the way in which the neighbourhood living environment is viewed as a place to live and the role in affecting opinions represents one of the most important findings of the Housing Opinion Survey.

VII. CHAPTER SEVEN

SOME IMPLICATIONS FOR DENSITY AS A PLANNING CONCEPT

A. RECENT DENSITY GUIDELINES IN EDMONTON

In Chapter 4, where the treatment of density in the West Jasper Place plans was reviewed, it was concluded that although the need for more intensive use of land in suburban neighbourhoods was recognized, the implications of an increase in density and the role of density as a planning tool in the land use allocation process were not adequately demonstrated. It therefore seemed appropriate to conclude the thesis with a comparable review of the most recent attempts to apply the density concept for planning purposes. The critical documents are the Edmonton General Muncipal Plan of 1980 and a report entitled "Guidelines for the Distribution and Design of Neighbourhood Density," which was adopted in 1978 for the evaluation of district and neighbourhood outline plans. Essentially, the purpose of the review is to determine how Edmonton's planners have refined their use of the density concept in the light of the changing circumstances of suburban development, and to compare the refinements against the results of the housing opinion survey.

To begin with, residential density standards are well featured in the new general plan, but neither their precise role nor their derivation is any clearer than it was in the West Jasper Place plans. The recommended standards are summarized in Table 31, but the plan fails to explain what is meant by low, medium or high density. For example, what combinations of housing and environmental conditions are embraced by the term "medium density?" Furthermore, there are no guidelines for the application of the density concept in neighbourhoods with a mixture of housing types, and the implications of mean neighbourhood density with respect to service and facility needs are not discussed. It is therefore difficult to tell exactly what purpose these standards are intended to serve, other than to provide some loose direction to developers and builders. It is also uncertain how they will affect suburban neighbourhoods that are partially developed, or even (because a different basis of measurement has been used) if the densities in the 1980 plan represent an increase over previous recommendations. How will these new density standards be implemented, amd will they result in an overall density increase in those housing zones (e.g. RP1) where vacant land is available? The plan, itself, gives only the vaguest guidance, so it must be concluded that the approach to density standards as a form of planning control has not really advanced since the amended West Jasper Place plan of 1972. The standards are still presented as raw numbers without any justification of

TABLE 31

SUBURBAN AREAS: MAXIMUM DENSITY AND BUILDING FORM GUIDELINES FOR SUBURBAN RESIDENTIAL AREAS

Predominant Characteristics	Maximum Density Units Per net Residential Hectare	Maximum Height In Metres
Low Density Single Family	33.3 (13.3)	10 (32.8)
Low Density Multiple Unit	42 (17)	10 (32.8)
Medium Density	125 (50.6)	14 (45.9)
High Density "Family"	225 (91)	23 (75.5)
High Density "High Rise"	325 (131.5)	45 (147.6)

( ) = acre equivalent

Source: City of Edmonton General Municipal Plan, 1979.

their origin, as an end product of some unknown statistical calculation.

Although the 1980 plan states that the density standards presented in Table 31 will act as guidelines for development in new suburban areas, the treatment of density in the plan is much more than a reliance upon standards. Compared to previous plans, the discussion of the implications of density applications represents a more comprehensive approach towards the density-related issues affecting suburban development. The most significant contribution of the General Municipal Plan with respect to the density concept is that there are recommendations which attempt to deal with the factors behind the density tradeoff, and density-related design guidelines are presented in an effort to alleviate many of the problems associated with mixed housing types and density increases in suburban neighbourhoods.

Although the relationship between the economy of housing and living conditions is not identified, the need to permit variations in house design to lower costs represents one of the major residential policies of the 1980 plan. It is therefore emphasized that the City will permit increases in the density of suburban single family housing, and will be more flexible in its approval procedures, to facilitate the construction of zero lot line, small lot and two family housing developments. To keep pace with changing demands in the housing market, the plan recommends the preparation of 5 year projection studies that are capable of providing information about the "split for housing types," or the breakdown between the required amounts of multiple and single family housing. It is also apparent that the contribution of land costs is recognized in the plan; by increasing the land supply through annexation, the City hopes that it will be possible to lower housing costs.

The importance of the density-related design guidelines is that they not only address current planning issues, but also the problems that are anticipated as a result of the policies favouring increases in single family housing density. The objectives of the design guidelines are to improve the distribution of higher density housing types and to ensure that a compatible relationship or integration of different housing types is achieved. The guidelines therefore stress the design principles of neighbourhood layout and housing location and placement, with specific reference to multiple housing. To avoid incompatible relationships between housing types, it is suggested that the layout of housing should be transitional by density or housing type. This would eliminate the negative consequences of locating high density, multiple housing next to single family development. Although it is recommended that neighbourhoods contain some mix of housing types, the plan advocates the design of "sub-neighbourhood units," where housing types of similar density are concentrated in the same section of the neighbourhood. As with the transition of housing density, this would avoid many physical-design problems, such as conflicting access requirements, intrusions on privacy, and so on. Planners are also concerned with the concentration of multiple housing, and to minimize the perception of its physical presence and profile in the neighbourhood, it is suggested that three design guidelines be followed:

1. Limit the size of multiple housing parcels and the length of their street frontage;
2. Limit multiple housing concentration adjacent to the central school/park site and neighbourhood entrance ways;
3. Encourage high density apartments to locate at the periphery of neighbourhoods.[1]

Compared to previous plans, attempts to reduce the exposure to multiple housing represents a new design approach - one that planners presumably expect to permit a density increase without adverse perceptions of its environmental consequences.

One of the limitations of the 1980 plan is that a rationale for the design guidelines is not presented. It is therefore necessary to turn to the "Distribution and Design of Neighbourhood Density Report" to find the bases of the 1980 plan. For example, the design factors presented in policy 5.C.4., which deals with the concentration of multiple housing and neighbourhood layout, are said to

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[1] City of Edmonton, *General Municipal Plan*, 1980, p.5.13

"incorporate the major recommendations of the report 'Design and Distribution of Density in New Neighbourhoods.'"[2]

As stated in that report, the primary function of the density-related design guidelines is to alleviate the problems related to the design and distribution of multiple housing. Two of the eleven guidelines address density-related design factors at the district or outline plan scale. The nine neighbourhood guidelines deal with three fundamental elements of design: neighbourhood housing mix; the placement and locational relationships of different housing types; and the physical appearance and features of multiple housing. Along whith each guideline, a "rationale" is presented to provide an explanation of the purpose of the guideline and the types of development circumstances it is intended to address. Additionally, a description of the implementation of the guideline is presented so that the stage in the planning process can be identified.

At the district or outline plan level, the design guidelines are related to the housing mix and the relationship between the range of densities and the provision of facilities and services. In district Guideline #1, it is recommended that a district like West Jasper Place should be heterogeneous, and provide a variety of housing alteratives and neighbourhoods. The need to provide a mix of single family and multiple housing is based on the rationale that it is more socially desirable to have access to a variety of social contacts, since democracy and mutual understanding will be promoted. The second district guideline is concerned with the importance of establishing densities at the neighbourhood level so that the distribution of district services and facilities can be determined. Because neighbourhood densities may vary in the district, planners want to ensure that the proximity to district facilities is reflected in the location of high density neighbourhoods. Furthermore, the distribution of services is also dependent on the amount and type of services required. Therefore, it is recommended that a profile of the population (age, household size, etc.) be determined.

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[2] City of Edmonton, *General Municipal Plan*, Volume 2, 1980, p.28

Although the district guidelines are important in that they affect the design of all neighbourhoods, the density-related design guidelines at the neighbourhood scale have greater implications for the thesis, since they provide a direct comparison with the survey findings. Essentially, the nine neighbourhood guidelines can be summmarized as follows:

1. Neighbourhoods should be more homogeneous in housing form than districts, and sub-neighbourhoods should be largely homogeneous;
2. Only physically compatible forms of housing should be adjacent to each other;

3. The development of more housing (both multiple and detached) that has characteristics of the conventional single family house should be encouraged;
4. Multiple housing at less than 12 units per acre may be distributed throughout the neighbourhood;
5. A multiple parcel should be ideally limited in size to 3 acres and no larger than 5 acres;
6. Subsidized housing developments should be as small as feasible - concentration should be avoided;
7. In multiple housing projects, the provision of more on-site amenities should be encouraged;
8. In multiple housing, site planning and design should lessen the impression of massiveness and high density;
9. Sub-neighbourhoods with an identifiable character should be encouraged in neighbourhood design.[3]

Of the nine guidelines recommended, three (Guidelines # 4,5,6) are directed at limiting the concentration of multiple housing in the neighbourhood. In order to decrease the overall perception of density, planners have concluded that a scattered distribution of multiple housing will limit the exposure to multiple projects. Therefore, while these guidelines imply that the proportion of multiple housing in the neighbourhood would not change, avoiding highly visible streets and neighbourhood entrance locations would give the impression that there is only a limited amount of multiple housing. It is suggested that the most appropriate location for multiple housing is the neighbourhood periphery.

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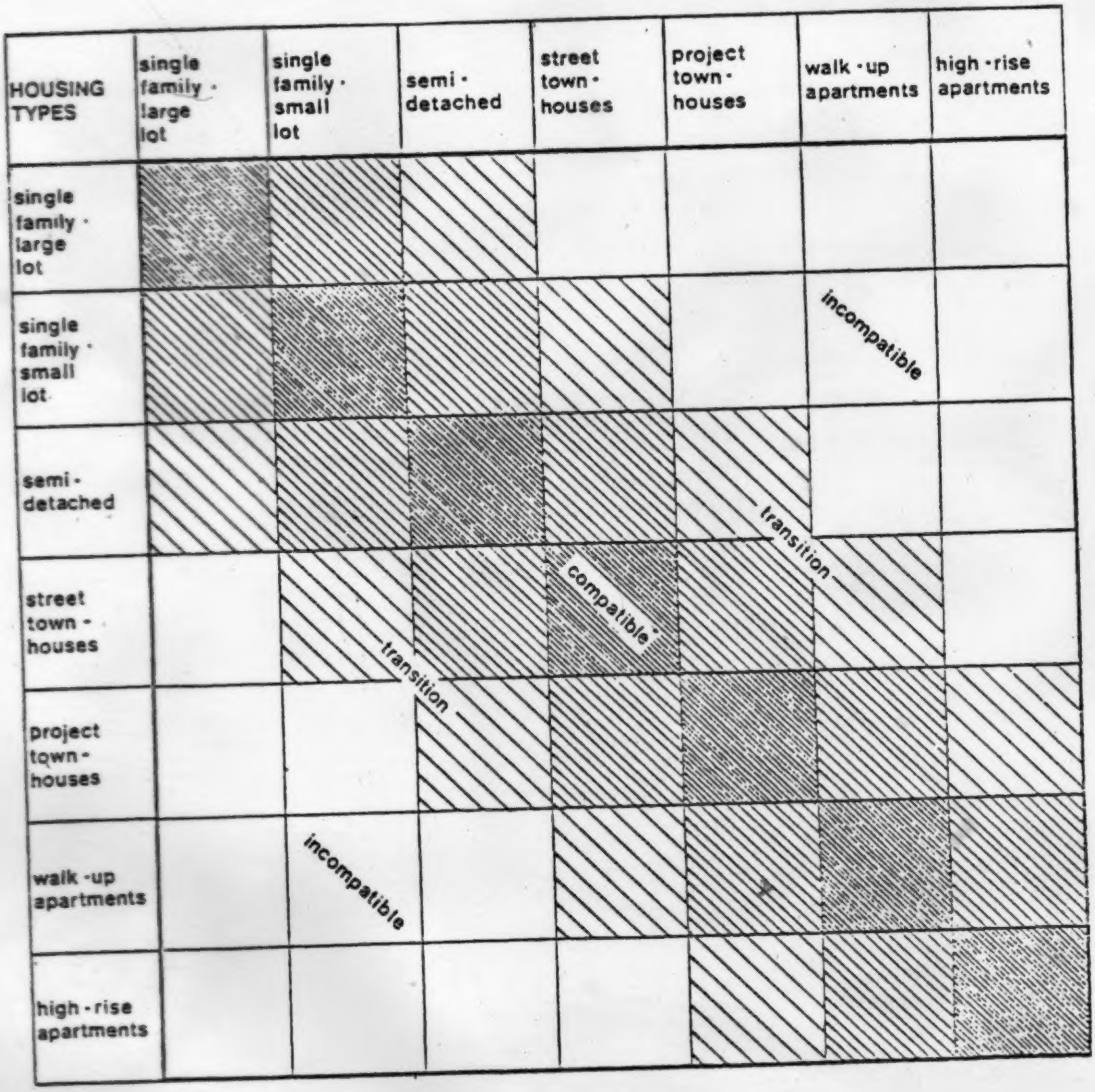
[3] City of Edmonton, *Guidelines for the Distribution and Design of Neighbourhood Density*, 1978.

As with guidelines # 4, 5 and 6, one of the objectives of Guidelines # 7 and 8 is to minimize the visual impact of multiple housing and the perception of high densities. The rationale of promoting more on-site amenities for multiple housing is that this type of design would reduce the competition for public services in the neighbourhood, and by encouraging the residents of multiple housing to use project facilties, this design would give the neighbourhood a less crowded appearance. In the report, it is also reasoned that it is often the appearance or the profile of multiple housing that gives the impression of high density rather than a project's actual size. As a result, the objective of Guideline # 8 to "lessen the impression of massiveness and high density" could be achieved through designing building form, colours and finishing materials in a manner that would integrate multiple projects with adjacent development. An important principle proposed in the report is that the "greater the density of a development, the more important are its aesthetics."

Along with the integration of multiple projects through careful design, the implications of neighbourhood layout and its relationship to the integration of housing types are addressed in guidelines # 2 and 3. Although housing design and landscaping design features may reduce the perception of incompatible housing forms, the need to integrate housing types in the neighbourhood holds some important planning implications. In an incompatible layout where high rise multiple is adjacent to single family housing, the planning goals may be in conflict. The rationale behind guideline #2 is that "transitional housing" should be used to secure a gradual increase in density. As part of Guideline # 2, a chart is presented in the report which identifies the housing types that are considered to be compatible with each other (Figure 9); this chart is also included in the 1980 plan as part of the density policies. Similarly, guideline # 3 proposes to limit the development of housing which falls at the extremes of the density range - large lot single family and higher density multiple housing. The advantages of encouraging the development of zero lot line, street townhouses and other types of housing which fall in the middle of the density range is that it is easier to achieve a compatible neighbourhood layout. The logic of Guideline # 3 is also supported by the fact that the development of housing similar in character to conventional single family will meet the housing market demand for lower cost housing. Furthermore, it is argued that limiting the development of high density will reduce perceptions of a dense or crowded neighbourhood environment.

FIGURE 9

HOUSING COMPATIBILITY


compatible
transition
transition
incompatible
incompatible

HOUSING TYPES	single family - large lot	single family - small lot	semi - detached	street town - houses	project town - houses	walk - up apartments	high - rise apartments
single family - large lot	▩	▨	▨				
single family - small lot	▨	▩	▨	▨			
semi - detached	▨	▨	▩	▨	▨		
street town - houses		▨	▨	▩	▨	▨	
project town - houses			▨	▨	▩	▨	▨
walk - up apartments				▨	▨	▩	▨
high - rise apartments					▨	▨	▩

Source: Planning Department, City of Edmonton

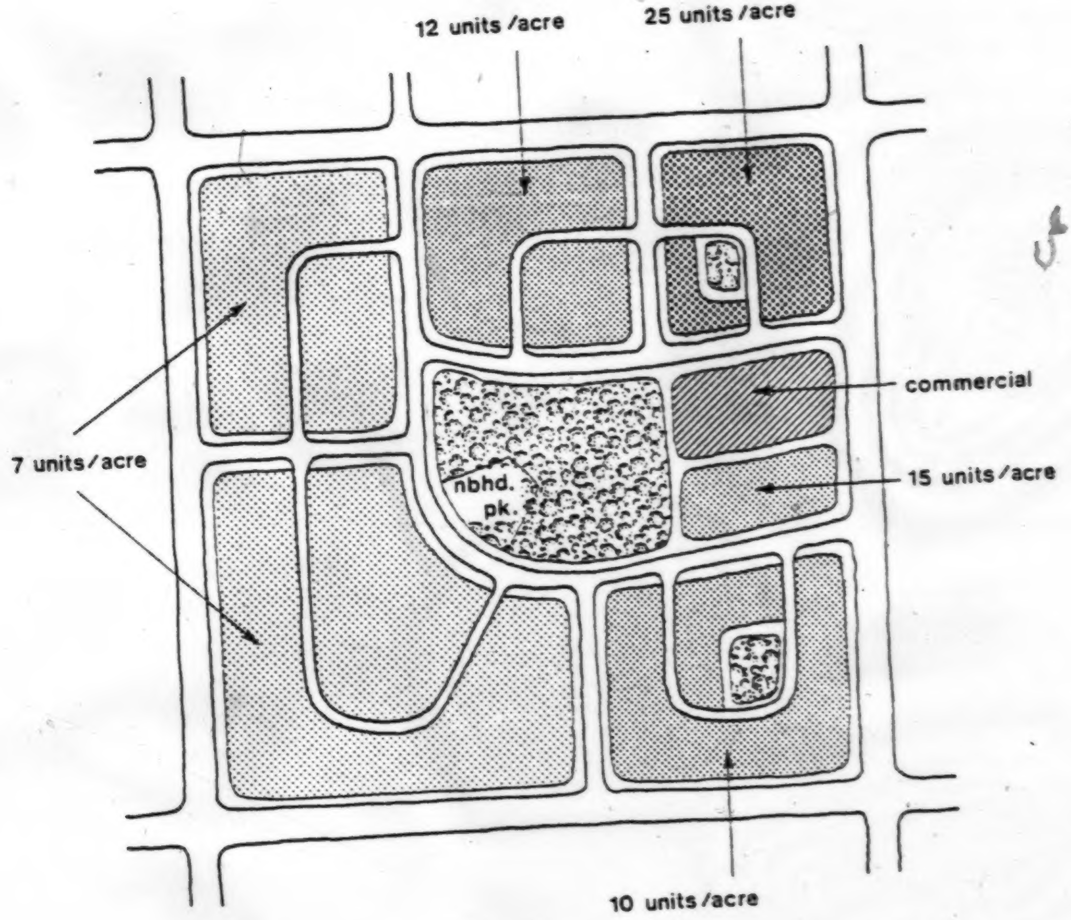
Guidelines # 1 and 9 are also closely tied to the concept of integrating different housing types into the neighbourhood environment, for they recommend that housing should be more homogeneous in form than at the district level, and that different housing densities in the neighbourhood should be designed as formal sub-neighbourhoods. The reasons for encouraging homogeneity at the neighbourhood level is related to the social implications of a population sharing similar values, income and background. The report suggests that homogeneous neighbourhoods create less social stress from a diversity of lifestyles and household composition, and the likelihood of creating a sense of community and identity is much greater. Furthermore, it is concluded that a neighbourhood composed of similar housing types maintains stable real estate values - a factor that is known to be important to homeowners. Guideline # 9 takes the merits of homogeneous neighbourhoods one step further by recommending that if a mix of densities is planned, they should be segregated into sub-neighbourhoods where the housing types are similar. In a sub-neighbourhood scheme, compatible housing types are segregated from higher or lower densities by open space, major roadways or other land uses. This maintains the desirable characteristics of homogeneity while integrating a mixture of different housing types into the neighbourhood.

Attached to Guideline # 9 is a model neighbourhood layout which results from the application of many of the density guidelines, particularly the formal sub-neighbourhood layout (Figure 10). As the figure shows, the different levels of densities are designed to form a gradation, with only compatible housing types located immediately adjacent to each other. The high traffic commercial and 25 units per acre sections are situated as far away from the low density housing (7 units/acre) as possible. The low density housing also represents the greatest proportion of land use in the neighbourhood.

If all the density guidelines are taken into account, the result is a profile of neighbourhood design different from anything that has been recommended in the past. There is more of an awareness of the different elements of density, and their contribution to neighbourhood design, rather than merely using density as a numerical representation of some desirable standard. Unlike the 1972 Amendments, one of the important principles that is addressed in the density report is the physical relationship between different levels of housing density. Such variables as neighbourhood placement and the proximity of different housing types have not been considered in previous plans. Therefore, it can be concluded that the density design guidelines are a logical outgrowth of experiences with the density concept and the planning issues in suburban development.

FIGURE 10

RECOMMENDED NEIGHBOURHOOD LAYOUT


12 units /acre
25 units /acre
commercial
7 units / acre
nbhd.
pk.
15 units / acre
10 units /acre

Source: Planning Department, City of Edmonton

B. A COMPARISON WITH THE SURVEY FINDINGS

To test the feasibility of the nine neighbourhood density-related design guidelines in the Density Distribution and Design Report, they were compared to the findings of the Housing Opinion Survey. The design and development of relatively homogeneous neighbourhoods has more implications for the planning issues and problems identified in the Housing Opinion survey than any other guideline presented in the report. Although Guideline # 1 does not recommend *absolutely* homogeneous environments of single family or multiple housing, it does suggest that neighbourhoods should not contain a full range of housing types, from large lot single family to high-rise apartments. One of the response patterns evident in the survey is that the likelihood of a negative reaction towards neighbourhood housing increases relative to the amount of multiple housing found in the neighbourhood. The significance of homogeneity as a design guideline is that by limiting the range of housing types, it is apparent that the amount of multiple housing would be reduced at least to the level where it would not be the dominant housing type in the neighbourhood. As part of this guideline, planners were concerned with the incompatibility of different housing types and recommended that "too broad a range of housing should normally be avoided at the neighbourhood scale." Therefore it can be concluded that high density multiple housing development would be limited because it is the most difficult housing type to integrate into the neighbourhood. By reducing the range of housing types, it is apparent that situations like Callingwood, where the majority of homeowners have strong negative reactions towards neighbourhood housing, would be avoided. The limited range of housing types may also explain the favourable housing reactions in Westridge. As a result, the implementation of guideline # 1 represents an important step towards alleviating many of the concerns of single family homeowners.

In Guideline #9, the need for formal "sub-neighbourhoods" of relatively homogeneous housing density and character is also referred to as an extension of Guideline # 1. Even more than at the neighbourhood level, homogeneity is crucial at this scale, since it results in a concentration of housing types. As will be shown, however, this contradicts other design guidelines.

Guideline #2 is supported by the survey finding that it is desirable to separate different housing types with open space. This guideline also recommends that only physically compatible forms of housing be situated adjacent to each other. The experience of Aldergrove and Callingwood, two neighbourhoods that exhibit imcompatible mixes of housing, underlines the force of this principle.

In contrast to the implications for density and design at the neighbourhood level, Guidelines 7 and 8 deal with the site planning and design of multiple housing. Although the provision of on-site amenities, such as recreation facilities, and the careful use of building design to reduce the impression of an increase in neighbourhood density are regarded as contributions to neighbourhood quality, response patterns indicated that the design features of different housing types do not affect housing reactions. Therefore, in the case of Aldergrove and Callingwood, Guidelines 7 and 8 would not change the way homeowners regard their neighbourhood as a place to live.

The remaining design guidelines address the neighbourhood placement and concentration of multiple housing. The origin of these guidelines is unknown, but they are not consistent with the opinions identified in the survey. Essentially, the guidelines recommend that multiple housing should not be concentrated in the neighbourhood (part of Guideline #3), that it should be distributed in small clusters, and that locations near neighbourhood entrances should be avoided (Guideline #4). Additionally, it is specified that the development of housing containing many of the desirable characteristics of conventional single family houses should be encouraged (Guideline #3). This would include small lot single family, and multiple forms such as semi-detached units and street townhousing. Finally, the guidelines incorporate a variety of related notions, such as the desirability of placing single family housing adjacent to the central school/park site, reducing the number of "project-like" developments, and increasing the number of neighbourhood entrances (Guideline #4). What these guidelines fail to take into account, however, is the way in which multiple housing is integrated into the neighbourhood housing mix, or the relationship between the amount of multiple housing and the amount of single family housing. From the Aldergrove and Callingwoood responses, it was evident that once a critical amount of multiple housing was present in the neighbourhood, residents would react negatively to the housing environment, regardless of the degree to which the threshold was exceeded. It remains open to question whether the new design principles would cause this perceptional threshold to be raised, or whether a greater dependence on "compatible" forms of higher density housing will really be viewed more positively by the single family homeowners. The survey results suggest not. Furthermore, there is no guarantee that changing the neighbourhood locations of multiple housing will change the opinions of the homeowners about their neighbourhood as a place to live. As indicated in Chapter 6, the mean neighbourhood density is a major factor affecting housing opinions; its role is not addressed in these guidelines.

These reservations aside, the significance of the density-related design guidelines for Edmonton planners is that they represent a refinement of the application of the density concept and an attempt to address current density-related issues in suburban development. The fact that some of these guidelines do not coincide with the opinions expressed in the housing survey does not lead to the conclusion that they will not be valuable in the improvement of neighbourhood quality in the future. Rather, further refinement of the guidelines is needed, and this can only be achieved by aquiring more information about the interdependence of density and design in suburban neighbourhood development.

C. CONCLUSIONS

The treatment of density in the General Municipal Plan and the Distribution and Design Report have two implications for the density concept and its value in contemporary planning theory: that the purpose and application of density standards is still not clearly understood, and that present density issues in suburban development may be more effectively dealt with through density-related design concepts that will contribute to neighbourhood quality.

The review of the planning literature and the plans affecting West Jasper Place has shown that, while the factors affecting density standards and the priorities of suburban development have changed dramatically, "density" has meant little more than an attempt to give numerical expression to some desired standard of living conditions. As a planning concept, the most serious shortcoming of density measures is that they attempt to summarize too many elements of the residential environment, all of which must be accounted for at some time during the planning process. The amended West Jasper Place Plan of 1972 and the General

Municipal Plan of 1980 both exemplify this problem: absolute standards were presented without any explanation or justification. On their own however, density standards do not have the ability to tell planners about the interrelationships among environmental and design variables that contribute to neighbourhood quality. These interrelationships are complex, and it must be concluded that it is unrealistic to try to express them as a calculated mean or standard.

The Edmonton case study has also demonstrated that the ambiguity of synoptic density measures is paralleled by uncertainty about their role or purpose in modern planning. As long as there was a comparatively clear-cut problem to be dealt with (such as the relationship between the overcrowding of houses and bad health), density controls could be imposed in a straightfoward fashion. And as long as residential areas were designed for a homogeneous population of single family homeowners (as in the early applications of the neighbourhood unit concept) a mean density of development could be reasonably forecast and used, in its turn, as a basis for allocating community services and facilties. In heterogeneous areas, however, where housing types are mixed in endlessly different combinations, and service needs are equally varied amongst the different population groups, a mean density statistic has no practical force. At best, it stands as a crude indicator of a desired level of environmental quality, most commonly taking the form of a maximum standard or "ceiling." But how are such standards to be enforced? By themselves they do not serve as obvious development rules, of the old fashioned kind. A standard of one person per room as a measure of overcrowding, for example, could clearly be turned into an enforceable regulation, as could a standard of six houses per net residential acre in a homogeneous subdivision. But in the higher density suburbs that changing economic circumstances have forced on cities like Edmonton, a standard density could be arrived at through many different combinations and spatial arrrangements of community elements. The success or failure of the community design rests in the skill with which the elements are manipulated, and it is through this demanding design process that environmental quality is controlled.

This leads to the conclusion that there does not seem to be any practical reason why planners should continue to treat density in the conventional way. In the Edmonton case, the Density Distribution and Design Report shows that the control of design variables provides planners with a better understanding of the role of density in suburban development today. The strength of design principles is that they can more easily address the complex relationships of those variables which contribute to neighbourhood quality. As the survey findings indicated, the "neighbourhood effect," or the way in which residents regard their neighbourhood as a place to live, is greatly influenced by the way in which design variables are treated by planners to create a total residential environment. One of the most important issues in suburban development is the problem of increasing densities in a manner that is acceptable to single family homeowners. As opposed to fixed standards, density-related design guidelines offer a flexible approach to this problem, by specifically addressing the relationship of such factors as housing design, layout, mix of housing types and location - factors that cannot be adequately expressed in a single synoptic standard. The ability to account for more of the variables that contribute to neighbourhood quality is what makes this approach more valuable than conventional applications of the density concept.

The implication of density-related design guidelines for planning theory is that they reflect a need that has not been previously encountered in the application of the density concept. The forces affecting suburban development today are quite different from those that prevailed earlier in the history of the planning movement, and while the concern for environmental quality has not really changed, the design variables which are crucial to this goal have. While density standards have not changed from a way of expressing some desirable minimum standard for future development, this application of density is simply not capable of dealing with any contemporary planning problems or issues. And although their recent development makes it difficult to determine, the emergence of density-related design guidelines may represent a change in the application of the density concept that reflects the adoption of a comprehensive approach towards suburban neighbourhood planning and design.

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APPENDIX 1 - THE WEST JASPER PLACE HOUSING OPINION SURVEY

DEPARTMENT OF GEOGRAPHY
TELEPHONE (403) 432-3274

THE UNIVERSITY OF ALBERTA
EDMONTON, CANADA T6G 2H4

April 1981

Dear Aldergrove Resident:

I need your help!

I am a graduate student at the University who is conducting a survey on issues related to housing in the Aldergrove Area. The issues addressed in this survey greatly affect all Aldergrove residents, and they will continue to influence our lives in the future. To date, government surveys and private studies have provided little, if any, information about residents' opinions on housing-related issues. As part of my Master's thesis, my goal is to identify how residents feel about local housing and the quality of the Aldergrove area.

While I am interested in many of your housing opinions, I would prefer that you remain strictly anonymous. All of the opinions that you give in the questionnaire will remain completely confidential: only statistical results will appear in my thesis. I should also emphasize that this survey is an academic study that is not sponsored by any government agencies or private businesses.

The attached questionnaire is not a very long or difficult one to complete. It should take only about 20-25 minutes of your time to answer all of the questions.

In closing, may I stress to you the importance of this study. Since the distribution of the questionnaire is limited in number, your personal opinions will be representative of all residents in Aldergrove. By obtaining your personal opinions, it will be possible to assess the quality of the Aldergrove area.

Thank you again for your help. Your time and interest is greatly appreciated.

Sincerely,

Mark A. Sorenson,
Graduate Student.

MAS/fl

Aldergrove Housing Opinion Survey

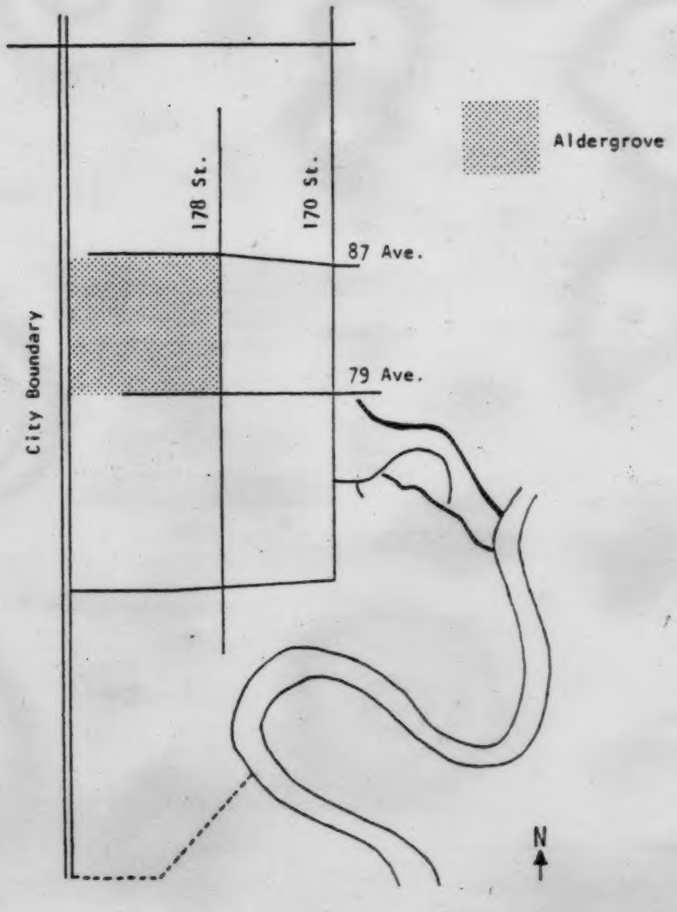
GENERAL INSTRUCTIONS: Either a pen or pencil can be used to complete this questionnaire. Most of the questions may be answered by simply placing a check ✓ in the appropriate box ☐ ; other questions ask for written answers. Unless specified, please give only one answer for each of the multiple choice questions. Please give your personal opinions for each of the questions asked.

The map below shows the Aldergrove area and its location in West Jasper Place.

Aldergrove is the area that you live in.

For this questionnaire, please consider housing only in the Aldergrove area.

WEST JASPER PLACE



Callingwood Housing Opinion Survey

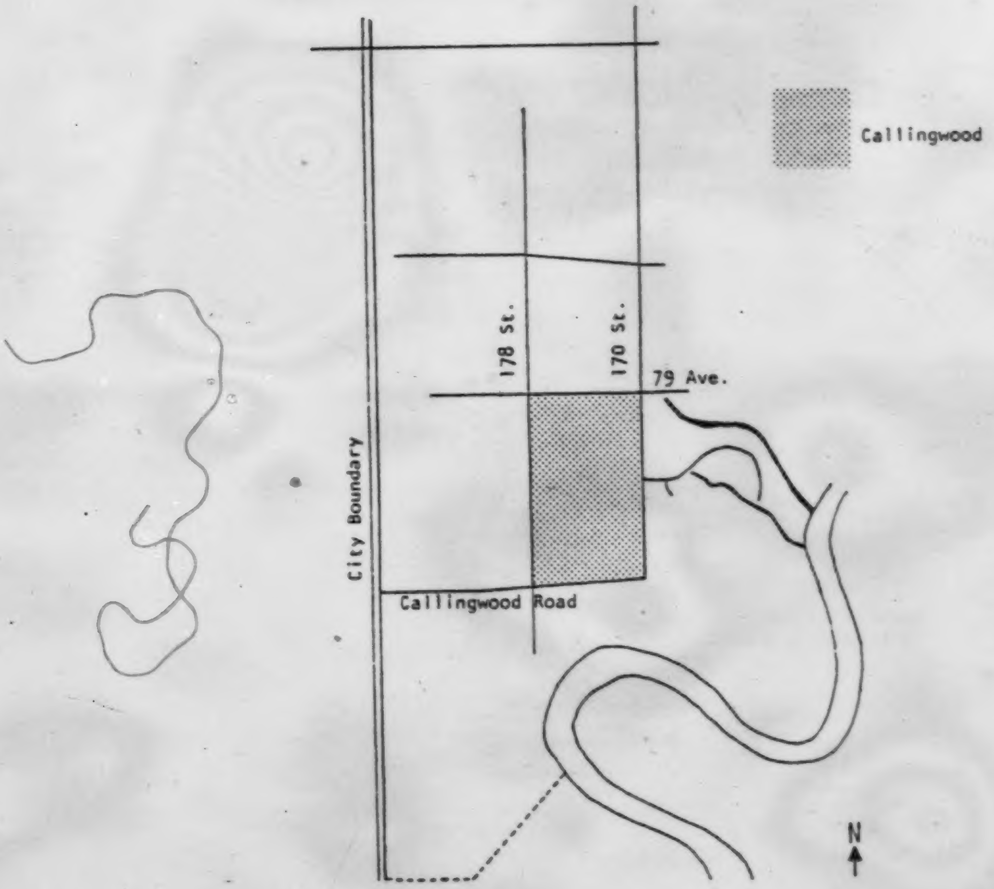
GENERAL INSTRUCTIONS: Either a pen or pencil can be used to complete this questionnaire. Most of the questions may be answered by simply placing a check √ in the appropriate box ☐; other questions ask for written answers. Unless specified, please give only one answer for each of the multiple choice questions. Please give your personal opinions for each of the questions asked.

The map below shows the Callingwood area and its location in West Jasper Place.

Callingwood is the area that you live in.

For this questionnaire, please consider housing only in the Callingwood area.

WEST JASPER PLACE



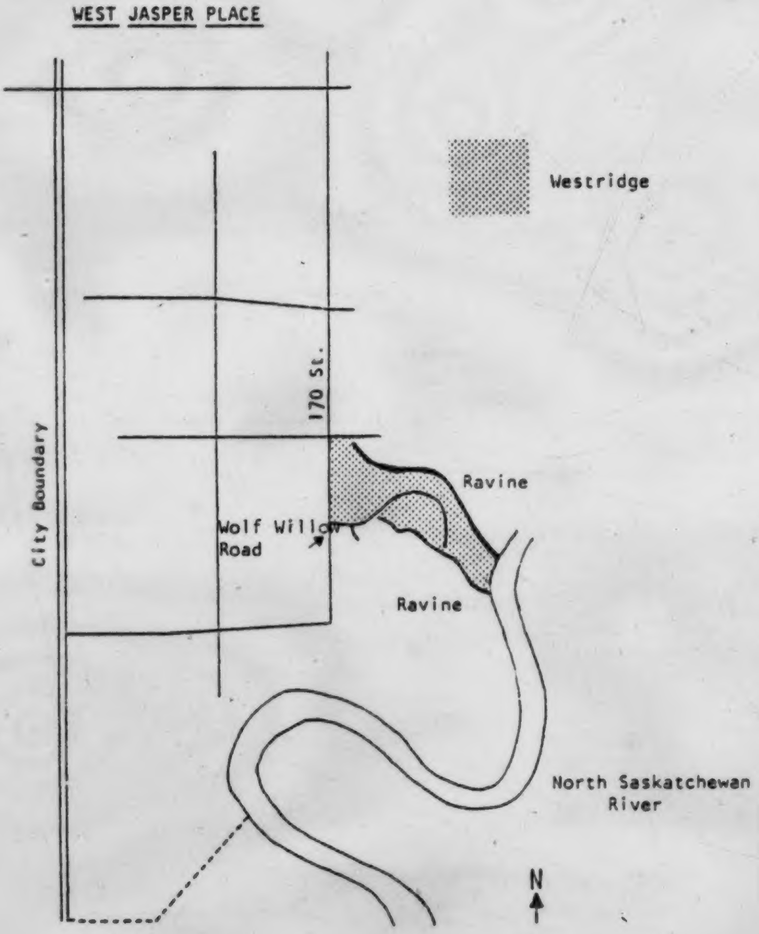
Westridge Housing Opinion Survey

GENERAL INSTRUCTIONS: Either a pen or pencil can be used to complete this questionnaire. Most of the questions may be answered by simply placing a check √ in the appropriate box ☐; other questions ask for written answers. Unless specified, please give only one answer for each of the multiple choice questions. Please give your personal opinions for each of the questions asked.

The map below shows the Westridge area and its location in West Jasper Place.

Westridge is the area that you live in.

For this questionnaire, please consider housing only in the Westridge area.


WEST JASPER PLACE
Westridge
170 St.
City Boundary
Ravine
Wolf Willow Road
Ravine
North Saskatchewan River
N

Q1. How would you describe the type of housing found in Aldergrove? (Please check ✓ only one answer.)

- primarily detached houses .... ☐
- primarily multiple housing, including rental apartments and condominiums .... ☐
- a mixture of detached houses and multiple housing, with the multiple housing scattered throughout Aldergrove .... ☐
- a mixture of detached houses and multiple housing, with the multiple housing concentrated in certain areas of Aldergrove ...... ☐
- other - please specify ______________________________

____

Q2. Whatever your answer to question #1, do you like or dislike the type of housing found in Aldergrove?

- strongly like .... ☐
- like.. ☐
- indifferent.. ☐
- dislike.. ☐
- strongly dislike.. ☐

Q3. Please explain your answer for question #2.

____

____

____

____

____

____

____

____

____

Q4. Now I would like to ask you about the provision of different services and facilities in West Jasper Place. In the list of services and facilities presented below, please indicate if you consider the service or facility to be inadequate, appropriate, or exceeding the present needs of residents who live in Aldergrove. Please check ✓ only one answer for each service or facility.

		Present Needs	
Type of Service or Facility	**INADEQUATE**	**ADEQUATE**	**EXCEEDING**
open space for family use (parks and other green areas)	☐	☐	☐
transportation (roads and streets)	☐	☐	☐
bus transit	☐	☐	☐
commercial facilities (shops, stores, etc.)	☐	☐	☐
elementary schools	☐	☐	☐
junior high schools	☐	☐	☐
senior high schools	☐	☐	☐
daycare facilities-babysitting	☐	☐	☐
police and fire protection	☐	☐	☐
religious facilities - churches etc	☐	☐	☐
community recreation centres	☐	☐	☐
public library facilities	☐	☐	☐
tennis and basketball courts	☐	☐	☐
recreation programs for adults (education and leisure classes, etc.)	☐	☐	☐
recreation and facilities specifically for teens (drop-in centres, etc.)	☐	☐	☐
private sports clubs (raquetball, squash, curling, etc.)	☐	☐	☐
street safety features, such as lights, crosswalks, etc	☐	☐	☐
swimming pools, skating rinks and other public sports facilities	☐	☐	☐

Q5. Consider the distance between your present address and different types of housing found in Aldergrove, such as apartments, condominiums and other types of multiple housing. What is the closest distance between your present address and these other types of housing?

less than a block.............. ☐
1 block......................... ☐
2 blocks........................ ☐
3 blocks........................ ☐
4 blocks........................ ☐
5 blocks................. ☐
6 blocks................. ☐
7 blocks................. ☐
other - please specify ________

Q6. Is there any new housing proposed or under construction in Aldergrove?

YES .... ☐
NO .... ☐

If you answered NO to question #6, skip questions 7-11. Please go to question #12 on page 7.

Q7. How would you describe the type of housing proposed or under construction? Please check √ more than one answer if it is appropriate.

detached houses with lots that are the same size as other house lots found in Aldergrove.................................... ☐
rental apartments - walk-up or high rise.................................... ☐
condominiums (includes self-owned apartments, row houses and townhouses).................................... ☐
detached houses with lots that are smaller than the average size house lot found in Aldergrove.................................... ☐
don't know.................................... ☐
other - please specify ________________________________

Q8. At what distance from your present address is the new housing under construction or proposed? (If there is more than one housing project in Aldergrove, please check ✓ the distance that is closest to you.)

less than a block.............. ☐

1 block......................... ☐

2 blocks........................ ☐

3 blocks................. ☐

4 blocks................. ☐

other - please specify ____________

Q9. Based upon what you have seen and heard about the new housing proposed or under construction in Aldergrove, what is your reaction to this new housing development?

I strongly like the development of this new housing............... ☐

I like the development of this housing.............................. ☐

I am indifferent towards the development of this housing.......... ☐

I dislike the development of this new housing....................... ☐

I strongly dislike the development of this housing................ ☐

Q10. Please explain your answer for question #9.

Q11. The following list is identical to the list presented in question #4. Considering the new housing under construction or proposed, and the total amount of housing that will exist in Aldergrove after these projects are completed, please indicate if the service or facility will be inadequate, adequate or exceeding the needs of residents who live in Aldergrove. Please check ✓ only one answer for each service or facility.

		Future Needs	
Type of Service or Facility	INADEQUATE	ADEQUATE	EXCEEDING
open space for family use (parks and other green areas)	☐	... ☐	... ☐
transportation (roads and streets)	☐	... ☐	... ☐
bus transit	☐	... ☐	... ☐
commercial facilities (shops, stores, etc.)	☐	... ☐	... ☐
elementary schools	☐	... ☐	... ☐
junior high schools	☐	... ☐	... ☐
senior high schools	☐	... ☐	... ☐
daycare facilities-babysitting	☐	... ☐	... ☐
police and fire protection	☐	... ☐	... ☐
religious facilities - churches, etc	☐	... ☐	... ☐
community recreation centres	☐	... ☐	... ☐
public library facilities	☐	... ☐	... ☐
tennis and basketball courts	☐	... ☐	... ☐
recreation programs for adults (education and leisure classes, etc.)	☐	... ☐	... ☐
recreation and facilities specifically for teens (drop-in centres, etc.)	☐	... ☐	... ☐
private sport clubs (raquetball, squash, curling, etc.)	☐	... ☐	... ☐
street safety features, such as lights crosswalks, etc	☐	... ☐	... ☐
swimming pools, skating rinks and other public sports facilities	☐	... ☐	... ☐

Q12 The following list represents various design features that are sometimes used in planning and designing residential areas. Along with the arrangement of different types of housing and the availability of services and facilities, various design features greatly affect the quality of a residential area.

PART 1 - Beside each design feature listed below, please indicate ✓ whether the feature exists in Aldergrove.
PART 2 - In your opinion, would each of the design features add to the quality of the Aldergrove area, take away from the quality, or make no difference?

DESIGN FEATURE	Part 1-Exists			Part 2-Area Quality		
	Yes	No	Don't Know	Add	Take Away	No Differ.
	check ✓ one			check ✓ one		
alleys and lanes	☐	☐	☐	☐	☐	☐
parks - tot-lots, etc	☐	☐	☐	☐	☐	☐
sidewalks and street curbs	☐	☐	☐	☐	☐	☐
pedestrian ways and bicycle paths	☐	☐	☐	☐	☐	☐
land barriers/berms	☐	☐	☐	☐	☐	☐
shrub and tree barriers	☐	☐	☐	☐	☐	☐
street lighting	☐	☐	☐	☐	☐	☐
underground power and telephone lines	☐	☐	☐	☐	☐	☐
common fencing along streets and walkways	☐	☐	☐	☐	☐	☐
open space to separate different types of housing	☐	☐	☐	☐	☐	☐
one way streets and crescents	☐	☐	☐	☐	☐	☐
cul-de-sacs (dead end streets with turnarounds)	☐	☐	☐	☐	☐	☐
houses not in the shade of high rise buildings	☐	☐	☐	☐	☐	☐
restricted street parking for multiple housing tenants and guests	☐	☐	☐	☐	☐	☐
external colour and building material restrictions on housing	☐	☐	☐	☐	☐	☐
artificial lakes and ponds	☐	☐	☐	☐	☐	☐
external maintenance and up-keep regulations for housing	☐	☐	☐	☐	☐	☐

Q13. To meet the demand for future housing, Edmonton City planners will be pressured to allow the further development of multiple housing, such as rental apartments and condominiums. This means that planners will have to determine a suitable location for this type of housing.

In your opinion, which residential areas in Edmonton are the most appropriate for locating more multiple housing development?

(Please check ✓ only one answer.)

newer suburban areas (e.g. Castle Downs, West Jasper Place, Millwoods and Clareview)........................... ☐

scattered throughout the city in concentrations.................. ☐

in the city center (e.g. Oliver and Strathcona).................. ☐

older areas near the city center (e.g. Norwood and Boyle Street).. ☐

areas between the older city center areas and the newer suburbs (e.g. Glenora, Westmount, Bonnie Doon)............. ☐

there should not be more multiple housing development in Edmonton.. ☐

other - please specify ____________________________

Q14. In recent years, land and housing costs have increased to the point where many families cannot afford to purchase a house. These high land and housing costs have pressured planners and developers to come up with alternative types of housing that are affordable and appropriate for family needs.

In your opinion, what type of housing is the best alternative to the conventional house that can be offered at an affordable price?

(Please check ✓ only one answer.)

walk-up or high rise rental apartments............................ ☐

condominiums (includes self-owned apartments, townhouses, etc.)... ☐

smaller detached houses on smaller lots (e.g. 25 x 50 ft. lot).. ☐

"zero lot line" detached houses (the house is placed to an extreme side of the lot, thereby eliminating a side yard-overall result is a smaller lot, but the house size varies at the discretion of the developer........................ ☐

other - please specify ____________________________

	Now I would like to ask you some questions about your present housing.
Q15.	How long have you lived at your present address? __________ YEARS
Q16.	Do you rent or own your present housing? rent .... ☐ own......................... ☐
Q17.	What are the approximate dimensions of your lot? __________ft. (width) by __________ ft. (depth) don't know.................. ☐
Q18.	What is the approximate size of your house in square feet? (Please include finished basements.) __________ square feet don't know .... ☐
Q19.	What were your main reasons for choosing your present address as a place to live? __________ __________ __________ __________ __________ __________

Q20. Would you say that living at your present address has worked out about as you expected, or better than you expected, or not as well?

better than expected.......................... ☐
better in some ways, not in others.............. ☐
about as expected.............................. ☐
not as well as expected........................ ☐

Q21. Please explain your answer for question #20.

Q22. Do you intend to remain at your present address indefinitely?

yes.. ☐
no... ☐
not sure... ☐

Q23. Please explain your answer for question #22.

Now I would like to ask you some questions about the members of your household.

Q24. Including yourself, how many persons altogether live at your present address, related to you or not?

__________ total persons

Q25. Now that you have identified the total number of persons living at your present address, please indicate how many persons fall into each of the age groups listed below.

__________ persons between ages 0 and 4

__________ persons - ages 5 to 9

__________ persons - ages 10 to 14

__________ persons - ages 15 to 19

__________ persons - ages 20 to 24

__________ persons - ages 25 to 34

__________ persons - ages 35 to 44

__________ persons - ages 45 to 54

__________ persons - ages 55 to 64

__________ persons - ages 65 to 69

__________ persons - ages 70 and over

Q26. Do you have any additional comments to make about the housing in Aldergrove?

____

____

____

____

____

____

Thank you very much for completing this questionnaire.

Let me assure you that the results are anonymous and confidential.

It would be greatly appreciated if you could call 434-6862 when you have completed the questionnaire. An answering machine will take your message between 8:00 a.m. and 11:00 p.m.

Please leave your address and a time that you will be home so that I can pick up the questionnaire.

DEPARTMENT OF GEOGRAPHY
TELEPHONE (403) 432-3274

THE UNIVERSITY OF ALBERTA
EDMONTON, CANADA T6G 2H4

HOUSING OPINION SURVEY

Dear Resident:

Sorry that I missed you!

I dropped by today to see if you have completed the questionnaire for the Housing Opinion Survey.

It would be greatly appreciated if you could call 434-6862 as soon as you have completed your questionnaire. An answering machine will take your message between 8:00 a.m. and 11:00 p.m. Please leave your address and a time that you will be home so that I can pick up your questionnaire.

Thank you for your interest and cooperation. I am trying to get all of the questionnaires returned as soon as possible in order to determine the results of the survey.

I look forward to hearing from you.

Sincerely,

Mark A. Sorenson,
Graduate Student.

MAS/fl

APPENDIX 2 - RESPONSES TO THE SURVEY QUESTIONS

The tables in this appendix show the actual frequencies of response for each question in the survey. Their headings give the exact wording of each question, and they are presented in the order in which the questions were set in the survey.

QUESTION 1

HOW WOULD YOU DESCRIBE THE TYPE OF HOUSING FOUND IN YOUR "NEIGHBOURHOOD"?

			Type of Housing		
	detached	multiple	scattered multiple	concentrated multiple	no response
Neighbourhood					
Aldergrove Total	2	5	27	57	0
Zone 1	0	1	10	11	0
2	1	2	5	12	0
3	1	2	5	12	0
4	0	0	7	22	0
Callingwood (Total)	0	13	11	32	1
Westridge (Total)	63	0	2	25	0
Zone 1	17	0	0	7	0
2	14	0	0	9	0
3	15	0	0	6	0
4	17	0	2	3	0
Total Study Area	65	18	40	114	1

QUESTION 2

WHATEVER YOUR ANSWER TO QUESTION #1, DO YOU LIKE OR DISLIKE THE TYPE OF HOUSING FOUND IN "YOUR NEIGHBOURHOOD?"

Neighbourhood	strongly like	like	indifferent	dislike	strongly dislike	no response
Aldergrove (Total)	3	20	16	35	16	1
Zone 1	0	2	5	12	3	0
2	0	5	5	6	4	0
3	1	2	2	9	5	1
4	2	11	4	8	4	0
Callingwood (Total)	1	8	14	24	9	1
Westridge (Total	54	30	2	4	0	0
Zone 1	15	7	1	1	0	0
2	11	10	0	2	0	0
3	14	7	0	0	0	0
4	14	6	1	1	0	0
Total Study Area	58	58	32	63	25	2

QUESTION 3

PLEASE EXPLAIN YOUR ANSWER TO QUESTION #2

	too much multiple housing	opposes rental multiple housing	housing types should be segreg.	neigh. too high of density	like design of neigh. housing	dislike design of neigh. housing	like planning of neigh.	neigh. is over-crowded	no response
Neighbourhood									
Aldergrove (Total)	27	3	12	4	2	11	21	5	6
Zone 1	8	0	4	2	0	3	2	0	3
2	7	2	2	0	0	3	5	1	0
3	7	1	1	0	0	4	4	2	1
4	5	0	5	2	2	1	10	2	2
Callingwood (Total)	19	1	1	9	5	3	11	2	6
Westridge (Total)	7	1	10	1	22	3	38	0	8
Zone 1	0	0	3	0	6	1	11	0	3
2	2	0	2	0	7	1	9	0	2
3	5	0	1	0	4	0	9	0	2
4	0	1	4	1	5	1	9	0	1
Total Study Area	53	5	23	14	29	17	70	7	20

QUESTION 4

PLEASE INDICATE IF YOU CONSIDER THE SERVICE OR FACILITY TO BE INADEQUATE, ADEQUATE OR EXCEEDING THE PRESENT NEEDS OF RESIDENTS WHO LIVE IN "YOUR NEIGHBOURHOOD."

	Type of Facility											
	open space				transportation				bus transit			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	54	34	0	3	25	63	1	2	15	69	2	5
Zone 1	11	10	0	1	6	16	0	0	2	19	0	1
2	15	4	0	1	7	13	0	0	3	15	1	1
3	12	8	0	0	6	12	1	1	3	15	1	1
4	16	12	0	1	6	22	0	1	7	20	0	2
Callingwood (Total)	11	40	5	1	16	39	1	1	8	44	3	2
Westridge (Total)	4	77	7	2	8	80	0	2	20	61	7	2
Zone 1	1	18	5	0	4	20	0	0	6	16	2	0
2	1	22	0	0	2	21	0	0	1	17	4	1
3	0	19	1	1	2	18	0	1	3	17	1	0
4	2	18	1	1	0	21	0	1	10	11	0	1
Total Study Area	69	151	12	6	49	182	2	5	43	174	12	9

QUESTION 4

PLEASE INDICATE IF YOU CONSIDER THE SERVICE OR FACILITY TO BE INADEQUATE, ADEQUATE OR EXCEEDING THE PRESENT NEEDS OF RESIDENTS WHO LIVE IN "YOUR NEIGHBOURHOOD."

	Type of Facility											
	commercial				elementary schools				junior high schools			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	3	81	6	1	20	67	0	4	66	15	0	10
Zone 1	1	18	3	0	4	18	0	0	17	4	0	1
2	1	18	1	0	2	18	0	0	14	4	0	2
3	1	17	2	0	4	16	0	0	15	4	0	1
4	0	28	0	1	10	15	0	4	20	3	0	6
Callingwood (Total)	8	44	4	1	6	46	1	4	44	10	0	3
Westridge (Total)	17	64	6	3	33	52	1	4	32	53	1	4
Zone 1	6	16	1	1	10	14	0	0	10	14	0	0
2	6	15	2	0	8	13	0	2	8	13	0	2
3	3	16	1	1	7	13	1	0	8	12	1	0
4	2	17	2	1	8	12	0	2	6	14	0	2
Total Study Area	28	189	16	5	59	165	2	12	142	78	1	17

QUESTION 4

PLEASE INDICATE IF YOU CONSIDER THE SERVICE OR FACILITY TO BE INADEQUATE, ADEQUATE OR EXCEEDING THE PRESENT NEEDS OF RESIDENTS WHO LIVE IN "YOUR NEIGHBOURHOOD."

	Type of Facility											
	senior high schools				daycare - babysitting				police - fire protection			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	58	24	0	9	32	28	0	31	17	69	1	4
Zone 1	14	7	0	1	6	10	0	6	2	20	0	0
2	15	3	0	2	7	7	0	6	3	15	1	1
3	14	5	0	1	9	5	0	6	5	14	0	1
4	15	9	0	5	10	6	0	13	7	20	0	2
Callingwood (Total)	42	12	0	3	23	13	0	21	10	42	1	4
Westridge (Total)	36	48	1	5	27	36	0	27	16	73	0	1
Zone 1	12	12	0	0	4	14	0	6	4	19	0	1
2	8	11	1	3	7	7	0	9	3	20	0	0
3	9	12	0	0	10	5	0	6	3	18	0	0
4	7	13	0	2	6	10	0	6	6	16	0	0
Total Study Area	136	84	1	17	82	77	0	79	43	184	2	9

QUESTION 4

PLEASE INDICATE IF YOU CONSIDER THE SERVICE OR FACILITY TO BE INADEQUATE, ADEQUATE OR EXCEEDING THE PRESENT NEEDS OF RESIDENTS WHO LIVE IN "YOUR NEIGHBOURHOOD."

	Type of Facility											
	religious facilities				recreation centres				public librariess			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	40	44	1	6	23	58	2	8	61	26	0	4
Zone 1	11	11	0	0	6	15	0	1	15	6	0	1
2	9	9	1	1	7	10	0	3	14	5	0	1
3	8	11	0	1	6	13	0	1	10	9	0	1
4	12	13	0	4	4	20	2	3	22	6	0	1
Callingwood (Total)	22	30	1	4	45	10	0	2	40	16	0	1
Westridge (Total)	33	51	0	6	6	75	8	1	35	53	1	1
Zone 1	10	13	0	1	2	21	1	0	8	16	0	0
2	7	12	0	4	1	19	2	1	7	15	0	1
3	7	14	0	0	0	20	1	0	9	12	0	0
4	9	12	0	1	3	15	4	0	11	10	1	0
Total Study Area	95	125	2	16	74	143	10	11	136	95	1	6

QUESTION 4

PLEASE INDICATE IF YOU CONSIDER THE SERVICE OR FACILITY TO BE INADEQUATE, ADEQUATE OR EXCEEDING THE PRESENT NEEDS OF RESIDENTS WHO LIVE IN "YOUR NEIGHBOURHOOD."

	Type of Facility											
	tennis-basketball courts				adult recreation programs				teen recreation facilities			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	75	9	0	7	27	53	0	11	60	12	0	19
Zone 1	16	5	0	1	9	10	0	3	16		0	4
2	16	1	0	3	4	14	0	2	12	2	0	6
3	17	2	0	1	3	15	0	2	14	4	0	2
4	26	1	0	2	11	14	0	4	18	4	0	7
Callingwood (Total)	48	7	0	2	32	22	0	3	47	6	0	4
Westridge (Total)	15	67	6	2	15	70	2	3	39	37	0	14
Zone 1	4	19	1	0	3	20	0	1	10	13	0	1
2	2	20	0	1	5	16	0	2	9	9	0	5
3	4	17	0	0	3	18	0	0	9	6	0	6
4	5	11	5	1	4	16	2	0	11	9	0	2
Total Study Area	138	83	6	11	74	145	2	17	146	55	0	37

QUESTION 4

PLEASE INDICATE IF YOU CONSIDER THE SERVICE OR FACILITY TO BE INADEQUATE, ADEQUATE OR EXCEEDING THE PRESENT NEEDS OF RESIDENTS WHO LIVE IN "YOUR NEIGHBOURHOOD."

	Type of Facility											
	private sport clubs				street safety features				pools, rinks, etc.			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	49	32	1	9	40	50	0	1	57	28	0	6
Zone 1	12	8	0	2	9	13	0	0	16	6	0	0
2	11	7	0	2	7	13	0	0	13	5	0	2
3	12	8	0	0	12	8	0	0	11	8	0	1
4	14	9	1	5	12	16	0	1	17	9	0	3
Callingwood (Total)	40	14	0	3	34	21	0	2	49	7	0	1
Westridge (Total)	27	55	2	6	29	60	1	0	29	59	1	1
Zone 1	8	15	0	1	7	17	0	0	7	16	0	1
2	5	14	0	4	7	15	1	0	9	14	0	0
3	5	14	1	1	7	14	0	0	7	14	0	0
4	9	12	1	0	8	14	0	0	6	15	1	0
Total Study Area	116	101	3	18	103	131	1	3	135	94	1	8

QUESTION 5

WHAT IS THE CLOSEST DISTANCE BETWEEN YOUR PRESENT ADDRESS AND "OTHER" TYPES OF HOUSING?

	Number of Blocks									
	less than 1	1	2	3	4	5	6	7	other (more)	no response
Neighbourhood										
Aldergrove (Total)	24	26	24	4	4	6	0	2	0	1
Zone 1	15	6	1	0	0	0	0	0	0	0
2	8	8	4	0	0	0	0	0	0	0
3	1	8	8	0	0	1	0	1	0	1
4	0	4	11	4	4	5	0	1	0	0
Callingwood (Total)	20	23	6	6	1	0	0	0	0	1
Westridge (Total)	6	13	18	7	10	7	5	17	6	1
Zone 1	6	9	6	2	1	0	0	0	0	0
2	0	3	7	4	1	5	1	2	0	0
3	0	0	2	1	6	1	2	7	2	0
4	0	1	3	0	2	1	2	8	4	1
Total Study Area	50	62	48	17	15	13	5	19	6	3

QUESTION 6

IS THERE ANY NEW HOUSING PROPOSED OR UNDER CONSTRUCTION IN "YOUR NEIGHBOURHOOD"?

	yes	no	no response
Neighbourhood			
Aldergrove (Total)	64	24	3
Zone 1	10	11	1
2	16	4	0
3	15	3	2
4	23	6	0
Callingwood (Total)	33	18	6
Westridge (Total)	52	35	3
Zone 1	12	12	0
2	14	8	1
3	13	7	1
4	13	8	1
Total Study Area	149	77	12

QUESTION 7

HOW WOULD YOU DESCRIBE THE TYPE OF HOUSING PROPOSED OR UNDER CONSTRUCTION?

	Type of Housing						
	detached	apartment	condos	small lot	don't know	* other	no response
Neighbourhood							
Aldergrove (Total)	15	3	4	18	10	15	26
Zone 1	1	1	0	3	5	1	11
2	4	1	1	2	3	4	5
3	2	1	2	4	1	5	5
4	8	0	1	9	1	5	5
Callingwood (Total)	0	17	2	0	2	10	26
Westridge (Total)	44	3	2	2	3	0	36
Zone 1	12	0	1	0	0	0	11
2	10	1	1	0	1	0	10
3	9	1	2	0	2	0	7
4	13	1	0	0	0	0	8
Total Study Area	59	23	8	20	15	25	88

---

* Note: "Other" in the Type of Housing columns refers to a mixture of housing types, such as multiple and detached housing.

QUESTION 8

AT WHAT DISTANCE FROM YOUR PRESENT ADDRESS IS THE NEW HOUSING UNDER CONSTRUCTION PROPOSED?

	Number of Blocks									
	less than 1	1	2	3	4	5	6	7	other (more)	no response
Neighbourhood										
Aldergrove (Total)	12	15	6	9	13	2	5	1	3	25
Zone 1	0	0	0	1	4	1	3	0	1	12
2	0	4	2	5	3	1	1	0	0	4
3	1	2	4	2	4	0	0	0	2	5
4	11	9	0	1	2	0	1	1	0	4
Callingwood (Total)	0	0	5	9	10	1	0	3	3	26
Westridge (Total)	17	8	6	5	10	1	1	0	4	38
Zone 1	2	3	0	3	3	0	0	0	1	12
2	6	1	1	1	1	0	1	0	2	10
3	3	3	1	1	4	1	0	0	1	7
4	6	1	4	0	2	0	0	0	2	9
Total Study Area	29	23	17	23	33	4	6	4	10	89

QUESTION 9

WHAT IS YOUR REACTION TO THIS NEW HOUSING DEVELOPMENT?

	strongly like	like	indifferent	dislike	strongly dislike	no response
Neighbourhood						
Aldergrove (Total)	2	10	21	8	21	29
Zone 1	0	1	4	1	3	13
2	0	1	7	0	7	5
3	1	3	1	3	6	6
4	1	5	9	4	5	5
Callingwood (Total)	1	0	2	3	24	27
Westridge (Total)	13	16	17	2	1	41
Zone 1	4	4	5	0	0	11
2	4	1	5	1	1	11
3	1	4	6	0	0	10
4	4	7	1	1	0	9
Total Study Area	16	26	40	13	46	97

QUESTION 10

PLEASE EXPLAIN YOUR ANSWER TO QUESTION 9

Neighbourhood	too much multiple housing	opposes rental multiple housing	develop not signif. due to distance	neigh. too high of density	dev. similar to existing housing	poor neigh. amenities services	dislike neigh. planning	zoning changed density increase	neigh. is over-crowded	no response
Aldergrove (Total)	10	3	5	4	15	5	7	9	1	32
Zone 1	2	1	1	1	1	0	2	2	0	12
2	4	1	1	2	2	1	2	1	0	6
3	1	1	0	1	3	2	2	1	1	8
4	3	0	3	0	9	2	1	5	0	6
Callingwood (Total)	5	1	0	12	1	4	0	0	6	28
Westridge (Total)	1	0	3	3	25	0	7	0	0	51
Zone 1	1	0	1	2	6	0	0	0	0	14
2	0	0	1	1	5	0	1	0	0	15
3	0	0	1	0	5	0	3	0	0	12
4	0	0	0	0	9	0	3	0	0	10
Total Study Area	16	4	8	19	41	9	14	9	7	111

QUESTION 11

CONSIDERING THE NEW HOUSING UNDER CONSTRUCTION OR PROPOSED, PLEASE INDICATE IF THE SERVICE OR FACILTY WILL BE INADEQUATE, ADEQUATE, OR EXCEEDING FUTURE NEEDS

	Type of Facility											
	open space				transportation				bus transit			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	51	11	0	29	42	20	0	29	31	26	0	34
Zone 1	8	2	0	12	7	3	0	12	5	4	0	13
2	15	1	0	4	11	4	0	5	6	8	0	6
3	12	3	0	5	9	6	0	5	6	9	0	5
4	16	5	0	8	15	7	0	7	14	5	0	10
Callingwood (Total)	26	6	0	25	27	5	0	25	18	13	0	26
Westridge (Total)	7	40	5	38	4	47	0	39	12	36	4	38
Zone 1	0	10	3	11	2	11	0	11	3	8	2	11
2	3	10	0	10	1	12	0	10	1	11	1	10
3	2	11	1	7	1	13	0	7	2	11	1	7
4	2	9	1	10	0	11	0	11	6	6	0	10
Total Study Area	84	57	5	92	73	72	0	93	61	75	4	98

QUESTION 11

CONSIDERING THE NEW HOUSING UNDER CONSTRUCTION OR PROPOSED, PLEASE INDICATE IF THE SERVICE OR FACILITY WILL BE INADEQUATE, ADEQUATE, OR EXCEEDING FUTURE NEEDS.

	Type of Facility											
	commercial				elementary schools				junior high schools			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	10	49	4	28	34	29	0	28	52	8	0	31
Zone 1	1	7	2	12	5	5	0	12	8	2	0	12
2	2	14	0	4	5	11	0	4	11	4	0	5
3	3	11	1	5	10	5	0	5	15	0	0	5
4	4	17	1	7	14	8	0	7	18	2	0	9
Callingwood (Total)	13	17	1	26	25	7	0	25	30	2	0	25
Westridge (Total)	11	35	5	39	26	24	0	40	24	25	0	41
Zone 1	4	8	0	12	6	7	0	11	5	7	0	12
2	3	9	1	10	5	7	0	11	4	8	0	11
3	2	10	2	7	10	4	0	7	9	5	0	7
4	2	8	2	10	5	6	0	11	6	5	0	11
Total Study Area	34	101	10	93	85	60	0	93	106	35	0	97

QUESTION 11

CONSIDERING THE NEW HOUSING UNDER CONSTRUCTION OR PROPOSED, PLEASE INDICATE IF THE SERVICE OR FACILITY WILL BE INADEQUATE, ADEQUATE OR EXCEEDING FUTURE NEEDS.

	Type of Facility											
	senior high schools				daycare-babysitting				police-fire protection			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	50	10	0	31	34	12	1	44	26	35	1	29
Zone 1	8	2	0	12	6	1	1	14	3	7	0	12
2	14	1	0	5	6	5	0	9	5	8	1	6
3	14	1	0	5	8	4	0	8	10	5	0	5
4	14	6	0	9	14	2	0	13	8	15	0	6
Callingwood (Total)	29	3	0	25	24	1	0	32	19	9	1	28
Westridge (Total)	22	25	1	42	19	18	0	53	8	40	2	40
Zone 1	5	7	0	12	3	7	0	14	1	9	1	13
2	4	6	1	12	4	5	0	14	0	13	0	10
3	8	6	0	7	9	1	0	11	3	10	1	7
4	5	6	0	11	3	5	0	14	4	8	0	10
Total Study Area	101	38	1	98	77	31	1	129	53	84	4	97

QUESTION 11

CONSIDERING THE NEW HOUSING UNDER CONSTRUCTION OR PROPOSED, PLEASE INDICATE IF THE SERVICE OR FACILITY WILL BE INADEQUATE, ADEQUATE OR EXCEEDING FUTURE NEEDS.

	Type of Facility											
	religious facilities				recreation centres				public libraries			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	34	26	1	30	33	27	1	30	48	15	0	28
Zone 1	5	5	0	12	6	4	0	12	8	2	0	12
2	8	6	1	5	9	4	1	6	13	2	0	5
3	7	8	0	5	7	8	0	5	7	8	0	5
4	14	7	0	8	11	11	0	7	20	3	0	6
Callingwood (Total)	20	11	0	26	31	1	0	25	27	5	0	25
Westridge (Total)	21	24	1	44	8	37	5	40	23	28	0	39
Zone 1	6	6	0	12	1	11	1	11	6	7	0	11
2	3	6	0	14	3	7	1	12	4	8	0	11
3	7	6	1	7	2	11	1	7	6	8	0	7
4	5	6	0	11	2	8	2	10	7	5	0	10
Total Study Area	75	61	2	100	72	65	6	95	98	48	0	92

QUESTION 11

CONSIDERING THE NEW HOUSING UNDER CONSTRUCTION OR PROPOSED, PLEASE INDICATE IF THE SERVICE OR FACILITY WILL BE INADEQUATE, ADEQUATE, OR EXCEEDING FUTURE NEEDS.

	Type of Facility											
	tennis-basketball courts				adult recreation programs				teen recreation facilities			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	56	4	0	31	37	23	1	30	48	6	0	37
Zone 1	8	1	0	13	6	3	1	12	9	0	0	13
2	13	1	0	6	9	5	0	6	12	2	0	6
3	14	1	0	5	10	5	0	5	12	2	0	6
4	21	1	0	7	12	10	0	7	15	2	0	12
Callingwood (Total)	27	4	0	26	25	5	0	27	29	1	0	27
Westridge (Total)	11	36	3	40	10	38	1	41	25	18	0	47
Zone 1	2	9	1	12	2	9	1	12	6	6	0	12
2	3	9	0	11	2	9	0	12	3	7	0	13
3	4	10	0	7	4	10	0	7	9	2	0	10
4	2	8	2	10	2	10	0	10	7	3	0	12
Total Study Area	94	44	3	97	72	66	2	98	102	25	0	111

QUESTION 11

CONSIDERING THE NEW HOUSING UNDER CONSTRUCTION OR PROPOSED, PLEASE INDICATE IF THE SERVICES OR FACILITY WILL BE INADEQUATE, ADEQUATE OR EXCEEDING FUTURE NEEDS.

	Type of Facility											
	private sport clubs				street safety features				pools, rinks, etc.			
	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.	inad.	adeq.	excd.	no resp.
Neighbourhood												
Aldergrove (Total)	48	11	0	32	31	30	0	30	57	6	0	28
Zone 1	8	2	0	12	4	6	0	12	8	2	0	12
2	14	1	0	5	5	11	0	4	14	1	0	5
3	12	3	0	5	9	5	0	6	21	2	0	6
4	14	5	0	10	13	8	0	8	21	2	0	6
Callingwood (Total)	25	5	1	26	27	5	0	25	29	2	0	26
Westridge (Total)	16	30	1	43	25	26	0	39	22	30	0	38
Zone 1	3	9	0	12	5	7	0	12	4	9	0	11
2	2	8	0	13	8	5	0	10	6	7	0	10
3	4	8	1	8	8	6	0	7	8	6	0	7
4	7	5	0	10	4	8	0	10	4	8	0	10
Total Study Area	89	46	2	101	83	61	0	94	108	38	0	92

QUESTION 12

PART 1 - PLEASE INDICATE WHETHER THE FEATURE EXISTS IN "YOUR NEIGHBOURHOOD."
PART 2 - WOULD EACH OF THE FEATURES ADD, TAKE AWAY OR MAKE NO DIFFERENCE TO THE QUALITY OF "YOUR NEIGHBOURHOOD"?

	Alleys and Lanes							Parks - Tot Lots							Sidewalks + Street Curbs						
	Part 1			Part 2				Part 1			Part 2				Part 1			Part 2			
Neighbourhood	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.
Aldergrove (Total)	7	80	4	20	39	29	3	47	35	9	81	0	4	6	90	0	1	75	0	11	5
Zone 1	2	20	0	4	10	7	1	14	5	3	20	0	1	1	22	0	0	18	0	3	1
2	1	17	2	5	10	4	1	10	8	2	16	0	2	2	19	0	1	17	0	2	1
3	1	17	2	4	6	10	0	9	9	2	19	0	0	1	20	0	0	17	0	2	1
4	3	26	0	7	13	8	1	14	13	2	26	0	1	2	29	0	0	23	0	4	2
Callingwood (Total)	5	45	7	12	21	18	6	29	24	4	49	3	1	4	55	0	2	44	0	9	4
Westridge (Total)	6	82	2	26	53	9	2	87	2	1	77	2	7	4	87	2	1	71	2	11	6
Zone 1	2	21	1	7	15	2	0	24	0	0	21	1	1	1	24	0	0	20	1	1	2
2	1	21	1	11	6	4	2	21	1	1	17	0	4	2	21	1	1	15	0	6	2
3	0	21	0	4	16	1	0	21	0	0	19	1	1	0	21	0	0	18	1	2	0
4	3	19	0	4	16	2	0	21	1	0	20	0	1	1	21	1	0	18	0	2	2
Total Study Area	18	207	13	58	113	56	11	163	61	14	207	5	12	14	232	2	4	190	2	31	15

QUESTION 12

PART 1 - PLEASE INDICATE WHETHER THE FEATURE EXISTS IN "YOUR NEIGHBOURHOOD."
PART 2 - WOULD EACH OF THE FEATURES ADD, TAKE AWAY OR MAKE NO DIFFERENCE TO THE QUALITY OF "YOUR NEIGHBOURHOOD"?

	Pedestrian Ways-Bike Paths							Land Barriers/Berms							Shrub-Tree Barriers						
	Part 1			Part 2				Part 1			Part 2				Part 1			Part 2			
	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.
Neighbourhood																					
Aldergrove (Total)	78	10	3	80	0	5	6	22	51	18	56	5	21	9	22	63	6	82	1	5	3
Zone 1	18	3	1	18	0	2	2	4	13	5	9	2	8	3	1	18	3	19	1	1	1
2	18	2	0	18	0	1	1	6	9	5	15	0	3	2	7	12	1	17	0	2	1
3	16	2	2	18	0	1	1	6	11	3	13	1	6	0	8	10	2	19	0	1	0
4	26	3	0	26	0	1	2	6	10	5	19	2	4	4	6	23	0	27	0	1	1
Callingwood (Total)	48	7	2	46	1	6	4	48	3	6	43	1	8	5	13	39	5	50	1	2	4
Westridge (Total)	85	4	1	77	2	7	4	66	16	8	67	6	9	8	49	32	9	77	4	4	5
Zone 1	23	1	0	22	1	0	1	15	7	2	19	3	1	1	10	12	2	21	3	0	0
2	22	0	1	16	0	5	2	16	4	3	13	0	6	4	14	7	2	17	0	4	2
3	20	1	0	19	0	2	0	18	2	1	17	1	2	1	14	4	3	19	1	0	1
4	20	2	0	20	1	0	1	17	3	2	18	2	0	2	11	9	2	20	0	0	2
Total Study Area	211	21	6	203	3	18	14	136	70	32	166	12	38	22	84	134	20	209	6	11	12

QUESTION 12

PART 1 - PLEASE INDICATE WHETHER THE FEATURE EXISTS IN "YOUR NEIGHBOURHOOD."
PART 2 - WOULD EACH OF THE FEATURES ADD, TAKE AWAY OR MAKE NO DIFFERENCE TO THE QUALITY OF "YOUR NEIGHBOURHOOD"?

	Street Lighting							Underground Lines							Common Fencing						
	Part 1			Part 2				Part 1			Part 2				Part 1			Part 2			
	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.
Neighbourhood																					
Aldergrove (Total)	89	2	0	77	0	10	4	84	1	5	75	0	9	7	25	55	11	54	8	21	8
Zone 1	21	1	0	19	0	3	0	20	0	2	18	0	2	2	9	11	2	15	2	4	1
2	20	0	0	16	0	3	1	19	0	1	16	0	3	1	6	13	1	8	2	8	2
3	20	0	0	17	0	2	1	18	0	2	17	0	2	1	5	10	4	14	1	4	1
4	28	1	0	25	0	2	2	27	1	1	24	0	2	3	4	21	4	17	3	5	4
Callingwood Total)	5	0	2	46	0	6	5	54	0	3	45	0	6	6	12	37	8	24	9	18	6
Westridge (Total)	88	1	1	81	1	3	5	88	0	2	79	1	4	6	38	39	13	43	22	16	9
Zone 1	24	0	0	22	1	0	1	24	0	0	22	0	0	2	10	9	5	11	7	4	2
2	22	0	1	19	0	2	2	23	0	0	18	0	3	2	9	9	5	7	5	7	4
3	20	1	0	20	0	1	0	20	0	1	20	0	1	0	10	10	1	15	4	2	0
4	22	0	0	20	0	0	2	21	0	1	19	1	0	2	9	11	2	10	6	3	3
Total Study Area	232	3	3	204	1	19	14	226	1	11	199	1	19	19	75	131	32	121	39	55	23

QUESTION 12

PART 1 - PLEASE INDICATE WHETHER THE FEATURE EXISTS IN "YOUR [illegible] -

	Part 1			Part 2				Part 1			Part 2				Part 1			Part 2			
	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.
Neighbourhood																					
Aldergrove (Total)	29	57	5	76	3	7	5	28	57	6	26	25	34	6	77	10	4	63	4	20	4
Zone 1	5	17	0	19	2	1	0	6	15	1	7	8	7	0	18	3	1	16	1	4	1
2	3	15	2	15	0	2	3	5	13	2	9	4	4	3	16	3	1	17	1	1	1
3	8	11	1	18	0	2	0	6	13	1	2	6	11	1	18	1	1	11	0	8	1
4	13	14	2	24	1	2	2	11	16	2	8	7	12	2	25	3	1	19	2	7	1
Callingwood (Total)	10	42	5	39	6	8	4	21	30	6	18	13	20	6	39	12	6	28	5	20	4
Westridge (Total)	45	33	12	56	8	18	8	27	57	6	22	34	28	6	89	1	0	66	6	14	4
Zone 1	15	7	2	16	3	3	2	4	18	2	4	10	10	0	23	1	0	19	3	1	1
2	9	9	5	13	1	6	3	7	15	1	5	8	8	2	23	0	0	14	1	6	2
3	12	7	2	13	3	5	0	9	12	0	10	5	5	1	21	0	0	17	1	3	0
4	9	10	3	14	1	4	3	7	12	3	3	11	5	3	22	0	0	16	1	4	1
Total Study Area	84	132	22	171	17	33	17	76	144	18	66	72	82	18	205	23	10	157	15	54	12

QUESTION 12

PART 1 - PLEASE INDICATE WHETHER THE FEATURE EXISTS IN "YOUR NEIGHBOURHOOD."
PART 2 - WOULD EACH OF THE FEATURES ADD, TAKE AWAY OR MAKE NO DIFFERENCE TO THE QUALITY OF "YOUR NEIGHBOURHOOD"?

	Houses Not Shaded by High Rises							Restricted Parking							Colour-Material Restrictions						
	Part 1			Part 2				Part 1			Part 2				Part 1			Part 2			
	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.
Neighbourhood																					
Aldergrove																					
(Total)	48	28	15	59	13	11	8	22	52	17	59	13	13	6	8	51	32	50	9	26	6
Zone 1	13	7	2	15	2	4	1	6	11	5	18	2	1	1	4	11	7	15	2	4	1
2	11	7	2	13	4	1	2	5	9	6	11	4	3	2	1	11	8	11	3	4	2
3	10	4	6	13	2	5	0	3	12	5	12	1	6	1	1	10	9	11	0	9	0
4	14	10	5	18	5	1	5	8	20	1	18	6	3	2	2	19	8	13	4	9	3
Callingwood																					
(Total)	34	17	6	33	13	4	7	8	35	14	36	12	5	4	3	26	28	29	11	10	7
Westridge																					
(Total)	60	26	4	57	20	8	5	14	50	26	50	17	15	8	10	50	30	44	14	23	9
Zone 1	15	8	1	15	6	2	1	5	14	5	11	7	5	1	3	11	10	13	4	6	1
2	17	5	1	14	5	2	2	2	14	7	8	5	5	5	3	13	7	9	3	9	2
3	13	8	0	16	3	2	0	4	9	8	18	2	1	0	1	12	8	11	4	4	2
4	15	5	2	12	6	2	2	3	13	6	13	3	4	2	3	14	5	11	3	4	4
Total Study Area	142	71	25	149	46	23	20	44	137	57	145	42	33	18	21	127	90	123	34	59	22

QUESTION 12

PART 1 - PLEASE INDICATE WHETHER THE FEATURE EXISTS IN "YOUR NEIGHBOURHOOD."
PART 2 - WOULD EACH OF THE FEATURES ADD, TAKE AWAY OR MAKE NO DIFFERENCE TO THE QUALITY OF "YOUR NEIGHBOURHOOD"?

	Artificial Lakes- Ponds							External Maintenance Regulations						
	Part 1			Part 2				Part 1			Part 2			
	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.	Yes	No	Don't know	Add	Take Away	No Diff.	No Resp.
Neighbourhood														
Aldergrove (Total)	0	90	1	76	7	6	2	10	52	29	71	1	13	6
Zone 1	0	22	0	18	3	1	0	2	11	9	18	1	1	2
2	0	20	0	16	2	1	1	3	12	5	15	0	3	2
3	0	20	0	17	1	2	0	3	9	8	18	0	2	0
4	0	28	1	25	1	2	1	2	20	7	20	0	7	2
Callingwood (Total)	0	51	6	45	3	5	4	4	26	27	44	2	5	6
Westridge (Total)	2	86	2	55	13	18	4	12	54	24	56	12	15	7
Zone 1	1	23	0	13	3	8	0	3	12	9	16	2	5	1
2	1	20	2	12	5	5	1	4	13	6	12	4	5	2
3	0	21	0	14	4	3	0	2	16	3	16	2	3	0
4	0	22	0	16	1	2	3	3	13	6	12	4	2	4
Total Study Area	2	227	9	176	23	29	10	26	132	80	171	15	33	19

QUESTION 13

IN YOUR OPINION, WHICH RESIDENTIAL AREAS IN EDMONTON ARE THE MOST APPROPRIATE FOR LOCATING MORE MULTIPLE HOUSING DEVELOPMENT?

	Residential Areas						
	new suburbs	scattered in city	city center	near center	areas between	no multiple	no response
Neighbourhood							
Aldergrove (Total)	4	32	9	14	9	17	6
Zone 1	1	10	2	2	0	6	1
2	1	6	0	5	3	4	1
3	1	6	3	5	2	2	1
4	1	10	4	2	4	5	3
Callingwood (Total)	6	13	8	8	4	12	6
Westridge (Total)	14	27	7	15	5	14	8
Zone 1	1	5	3	5	3	5	2
2	6	10	2	3	0	1	1
3	5	6	2	1	0	5	2
4	2	6	0	6	2	3	3
Total Study Area	24	72	24	37	18	43	20

QUESTION 14

IN YOUR OPINION, WHAT TYPE OF HOUSING IS THE BEST ALTERNATIVE TO THE CONVENTIONAL HOUSE THAT CAN BE OFFERED AT AN AFFORDABLE PRICE?

	Type of Housing				
	apartments	condos	small lot	zero lot-line	no response
Neighbourhood					
Aldergrove (Total)	4	25	30	28	4
Zone 1	2	3	9	7	1
2	0	4	7	8	1
3	1	6	5	7	1
4	1	12	9	6	1
Callingwood (Total)	0	17	18	17	5
Westridge (Total)	3	41	23	17	6
Zone 1	0	13	6	3	2
2	2	10	4	5	2
3	1	9	5	5	1
4	0	9	8	4	1
Total Study Area	7	83	71	62	15

QUESTION 15

HOW LONG HAVE YOU LIVED AT YOUR PRESENT ADDRESS?

	Number of Years										
	less than 1	1	2	3	4	5	6	7	8	9	10 or more	no response
Neighbourhood												
Aldergrove (Total)	4	10	14	15	15	19	12	1	0	0	1	0
Zone 1	2	4	3	3	2	3	4	1	0	0	0	0
2	0	3	4	5	1	1	6	0	0	0	0	0
3	1	3	1	3	1	9	1	0	0	0	1	0
4	1	0	6	4	11	6	1	0	0	0	0	0
Callingwood (Total)	4	4	4	6	4	4	1	8	8	12	1	1
Westridge (Total)	4	6	20	19	17	16	8	0	0	0	0	0
Zone 1	0	0	7	7	8	2	0	0	0	0	0	0
2	2	2	6	3	4	6	0	0	0	0	0	0
3	1	1	6	4	1	4	4	0	0	0	0	0
4	1	3	1	5	4	4	4	0	0	0	0	0
Total Study Area	12	20	38	40	36	39	21	9	8	12	2	1

QUESTION 16

DO YOU RENT OR OWN YOUR PRESENT HOUSING?

	Type of Occupancy		
	rent	own	no response
Neighbourhood			
Aldergrove (Total)	3	86	2
Zone 1	2	20	0
2	1	18	1
3	0	19	1
4	0	29	0
Callingwood (Total)	2	55	0
Westridge (Total)	1	89	0
Zone 1	0	24	0
2	1	22	0
3	0	21	0
4	0	22	0
Total Study Area	6	230	2

QUESTION 17

WHAT ARE THE APPROXIMATE DIMENSIONS OF YOUR LOT?

	Lot Dimensions * in Feet																
W=	40 - 49				50 - 59				60 - 69				70+				no response
D=	90-109	110-129	130-149	150+	90-109	110-129	130-149	150+	90-109	110-129	130-149	150+	90-109	110-120	130-149	150+	
Neighbourhood																	
Aldergrove (Total)	1	0	0	1	4	25	14	5	4	13	4	2	0	3	1	3	11
Zone 1	0	0	0	1	3	4	1	1	3	4	0	0	0	1	0	0	4
2	1	0	0	0	0	4	4	1	1	2	2	0	0	0	1	1	3
3	0	0	0	0	0	10	2	1	0	2	1	1	0	1	0	1	1
4	0	0	0	0	1	7	7	2	0	5	1	1	0	1	0	1	3
Callingwood (Total)	2	1	2	0	10	13	4	1	0	8	0	0	1	1	2	1	11
Westridge (Total)	2	0	0	0	3	5	0	3	5	17	7	3	4	9	4	10	18
Zone 1	0	0	0	0	0	1	0	1	0	2	2	2	2	3	2	5	4
2	0	0	0	0	1	1	0	2	0	4	1	0	1	3	2	2	6
3	1	0	0	0	1	1	1	0	0	1	5	3	1	1	1	0	3
4	1	0	0	0	1	2	0	0	4	6	1	0	0	2	0	0	5
Total Study Area	5	1	2	1	17	43	18	9	9	38	11	5	5	13	7	14	40

* "W" refers to the lot width, "D" refers to the depth of the lot.

QUESTION 18

WHAT IS THE APPROXIMATE SIZE OF YOUR HOUSE IN SQUARE FEET?

	Square Feet*													
	10-11	12-13	14-15	16-17	18-19	20-21	22-23	24-25	26-27	28-29	30-31	32-33	34 or more	no response
Neighbourhood														
Aldergrove (Total)	1	9	13	16	19	15	2	4	2	4	2	0	1	3
Zone 1	0	3	5	4	1	2	1	1	0	2	1	0	1	1
2	1	2	5	2	4	5	0	1	0	0	0	0	0	0
3	0	2	2	5	6	2	0	0	2	1	0	0	0	0
4	0	2	1	5	8	6	1	2	0	1	1	0	0	2
Callingwood (Total)	1	19	6	6	5	8	2	3	1	0	3	0	0	3
Westridge (Total)	0	0	1	3	11	11	16	9	5	3	4	3	21	3
Zone 1	0	0	0	0	1	3	3	5	0	2	1	1	8	0
2	0	0	0	0	2	2	1	1	2	0	1	1	10	3
3	0	0	0	1	4	5	9	1	1	0	0	0	0	0
4	0	0	1	2	4	1	3	2	2	1	2	1	3	0
Total Study Area	2	28	20	25	35	34	20	16	8	7	9	3	22	9

* each category is divided by 100, e.g. 18 = 1800 sq.ft.

QUESTION 19

WHAT WERE YOUR MAIN REASONS FOR CHOOSING YOUR PRESENT ADDRESS AS A PLACE TO LIVE?

	segre-gated housing types	like design neigh. housing	neigh. quiet, private	poor neigh. amenities services	like neigh. planning	like house, lot	like the location	house price, costs	no response
Neighbourhood									
Aldergrove (Total)	0	0	13	1	8	20	24	22	3
Zone 1	0	0	3	1	2	3	8	5	0
2	0	0	1	0	3	3	4	9	0
3	0	0	5	0	1	2	8	3	1
4	0	0	4	0	2	12	4	5	2
Callingwood (Total)	0	1	9	0	8	11	16	9	3
Westridge (Total)	4	3	14	5	27	17	13	6	1
Zone 1	2	1	3	0	8	6	3	1	0
2	1	1	5	2	3	4	5	1	1
3	1	0	5	2	8	2	3	0	0
4	0	1	1	1	8	5	2	4	0
Total Study Area	4	4	36	6	43	48	53	37	7

QUESTION 20

WOULD YOU SAY THAT LIVING AT YOUR PRESENT ADDRESS HAS WORKED OUT ABOUT AS YOU EXPECTED, OR BETTER THAN YOU EXPECTED, OR NOT AS WELL?

	better	better some, not others	as expected	not as expected	no response
Neighbourhood					
Aldergrove (Total)	12	12	50	17	0
Zone 1	3	2	11	6	0
2	3	2	12	3	0
3	1	6	10	3	0
4	5	2	17	5	0
Callingwood (Total)	3	19	20	15	0
Westridge (Total)	23	15	49	2	1
Zone 1	5	1	18	0	0
2	9	5	9	0	0
3	5	4	11	0	1
4	4	5	11	2	0
Total Study Area	38	46	119	34	1

QUESTION 21

PLEASE EXPLAIN YOUR ANSWER FOR QUESTION # 20

	too much multiple housing	neigh. too high of density	like design neigh housing	dislike design neigh housing	good neigh. amen. services	poor neigh. amen. services	likes neigh. planning	like house, lot	like people in neigh.	zoning changed density increase	knew what to expect	no response
Neighbourhood												
Aldergrove (Total)	13	1	0	1	2	8	3	3	7	3	31	19
Zone 1	4	0	0	0	1	2	0	1	1	2	8	3
2	2	0	0	0	0	2	0	2	1	0	7	6
3	5	0	0	0	0	1	2	0	2	0	5	5
4	2	1	0	1	1	3	1	0	3	1	11	5
Callingwood (Total)	9	3	1	2	0	12	2	1	5	4	10	8
Westridge (Total)	2	1	3	1	3	11	7	5	17	0	18	22
Zone 1	0	0	1	0	2	1	3	2	4	0	2	9
2	1	0	1	0	0	3	2	1	5	0	1	9
3	0	1	0	0	1	3	0	1	4	0	7	4
4	1	0	1	1	0	4	2	1	4	0	8	0
Total Study Area	24	5	4	4	5	31	12	9	29	7	59	49

QUESTION 22

DO YOU INTEND TO REMAIN AT YOUR PRESENT ADDRESS INDEFINITELY?

	yes	no	not sure	no response
Neighbourhood				
Aldergrove (Total)	24	32	34	1
Zone 1	5	6	11	0
2	8	6	6	0
3	3	10	7	0
4	8	10	10	1
Callingwood (Total)	21	13	23	0
Westridge (Total)	52	13	24	1
Zone 1	15	3	6	0
2	16	1	5	1
3	12	5	4	0
4	9	4	9	0
Total Study Area	97	58	81	2

QUESTION 23

PLEASE EXPLAIN YOUR ANSWER FOR QUESTION #22.

	too much multiple housing	neigh. too high of density	poor neigh. amenities services	no plan reason to move	new job-relocate	housing space needs changing	move desired new house, location	no response
Neighbourhood								
Aldergrove (Total)	4	1	7	21	9	12	23	14
Zone 1	0	0	1	4	2	7	6	2
2	1	0	0	7	2	1	6	3
3	3	0	4	4	1	2	3	3
4	0	1	2	6	4	2	8	6
Callingwood (Total)	3	2	1	21	4	9	12	5
Westridge (Total)	3	0	2	45	10	7	12	11
Zone 1	1	0	0	11	1	3	3	5
2	2	0	0	12	0	1	4	4
3	0	0	2	11	3	0	3	2
4	0	0	0	11	6	3	2	0
Total Study Area	10	3	10	87	23	28	47	30

QUESTION 24

INCLUDING YOURSELF, HOW MANY PERSONS ALTOGETHER LIVE AT YOUR PRESENT ADDRESS, RELATED TO YOU OR NOT?

	Number of Persons							
	1	2	3	4	5	6	7	no response
Neighbourhood								
Aldergrove (Total)	0	9	22	39	10	6	4	1
Zone 1	0	2	2	5	7	4	2	0
2	0	3	6	8	1	2	0	0
3	0	1	5	11	1	0	2	0
4	0	3	9	15	1	0	0	1
Callingwood (Total)	2	8	12	27	5	1	0	2
Westridge (Total)	0	3	14	40	22	8	2	1
Zone 1	0	1	1	13	5	4	0	0
2	0	0	6	7	8	2	0	0
3	0	1	2	13	4	0	1	0
4	0	1	5	7	5	2	1	1
Total Study Area	2	20	48	106	37	15	6	4

QUESTION 25

PLEASE INDICATE HOW MANY PERSONS FALL INTO EACH OF THE AGE GROUPS.

	Age Groups											
	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-69	70+	Total Pop.
Neighbourhood												
Aldergrove (Total)	43	43	30	36	10	70	62	41	5	0	6	346
Zone 1	9	11	12	14	4	10	16	16	0	0	3	95
2	7	9	7	9	1	21	10	9	0	0	0	73
3	10	15	5	7	2	12	24	1	3	0	1	80
4	17	8	6	6	3	27	12	15	2	0	2	98
Callingwood (Total)	21	21	19	21	11	35	36	28	7	2	0	201
Westridge (Total)	30	55	45	43	25	46	81	46	11	0	2	384
Zone 1	9	14	15	12	7	10	25	11	2	0	1	106
2	7	16	8	10	8	16	16	12	5	0	1	99
3	9	15	9	7	3	17	16	9	2	0	0	87
4	5	10	13	14	7	3	24	14	2	0	0	92
Total Study Area	94	119	94	100	46	151	179	115	23	2	8	931

QUESTION 26

DO YOU HAVE ANY ADDITIONAL COMMENTS TO MAKE ABOUT THE HOUSING IN "YOUR NEIGHBOURHOOD"?

	too much multiple housing	opposes rental multiple housing	neigh. too high of density	like design neigh. housing	dislike design neigh. housing	poor neigh. amen. services	likes neigh. planning	dislikes neigh. planning	no response
Neighbourhood									
Aldergrove (Total)	5	1	3	0	4	9	7	8	54
Zone 1	1	0	0	0	1	2	2	2	14
2	1	0	2	0	1	2	1	1	12
3	2	0	0	0	0	2	3	4	9
4	1	1	1	0	2	3	1	1	19
Callingwood (Total)	6	4	1	2	1	3	2	2	36
Westridge (Total)	3	0	4	2	6	3	9	9	54
Zone 1	1	0	2	2	3	0	2	2	12
2	1	0	1	0	1	0	1	3	16
3	1	0	1	0	1	1	2	1	14
4	0	0	0	0	1	2	4	3	12
Total Study Area	14	5	8	4	11	15	18	19	144